

# **FY2013**

## **FORT JACKSON**

### **Army Defense Environmental Restoration Program**

### **Installation Action Plan**

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## Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, Installation Management Command (IMCOM), the US Army Environmental Command (USAEC), Fort Jackson (FTJA), the executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules, and tentative budgets for all major Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

## Acronyms

AAFES	Army, Air Force Exchange Services
AEDB-CC	Army Environmental Database - Compliance-related Cleanup
AEDB-R	Army Environmental Database - Restoration
AFVR	Aggressive Fluid Vapor Recovery
AOC	Area of Concern
AR	Assessment Report
AST	Aboveground Storage Tank
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
C&D	Construction and Debris
CA	Corrective Action
CAP	Corrective Action Plan
CC	Compliance-related Cleanup
CDC	Child Development Center
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESAS	Corps of Engineers, South Atlantic Division, Savannah District
CIP	Community Involvement Plan
CLIN	Contract Line Item Number
CMI	Corrective Measures Implementation
CMI(C)	Corrective Measures Implementation - Construction
CMI(O)	Corrective Measures Implementation - Operations
CMIP	Corrective Measures Implementation Progress (Report or WP)
CMS	Corrective Measures Study
CNFA	Conditional No Further Action
CR	Compliance Restoration
CRP	Community Relations Plan
CS	Confirmatory Sampling
CTC	Cost-to-Complete
CTT	Closed, Transferring, and Transferred
CVOC	Chlorinated Volatile Organic Compound
cy	cubic yard
DA	Department of the Army
DCA	Dichloroethane
DD	Decision Document
DDSB	Department of Defense Explosives Safety Board
DERP	Defense Environmental Restoration Program
DES	Design
DMM	Discarded Military Munitions
DNAPL	Dense Non-Aqueous Phase Liquid
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
ER	Emergency Removal
ER,A	Environmental Restoration, Army
ERD	Enhanced Reductive Dechlorination

## Acronyms

ESP	Explosive Safety Plan
FJFC	FTJA Flight Club
FP	Free-Product
FRA	Final Remedial Action
ft	feet
FTJA	Fort Jackson
FY	Fiscal Year
GW	Groundwater
HNC	USACE - Huntsville
HRR	Historical Records Review
HRS	Hazard Ranking System
HW	Hazardous Waste
IAP	Installation Action Plan
ID	Identification
IGCE	Independent Government Cost Estimate
IGWA	Initial Groundwater Assessment
IM	Interim Measures
IMCOM	Installation Management Command
IMP	Implementation
IMP(C)	Implementation (Construction)
INV	Investigation
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ISC	Initial Site Characterization
K	thousand
kg	kilogram
LF	Landfill
LNAPL	Light Non-Aqueous Phase Liquid
LTM	Long-Term Management
LUC	Land Use Control
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
mg	milligram
MILCON	Military Construction
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MOGAS	Motor Gasoline
MR	Munitions Response
MTBE	Methyl Tert Butyl Ether
N/A	Not Applicable
NFA	No Further Action
NFRAP	No Further Remedial Action Planned
NLT	No Later Than
NPL	National Priorities List

## Acronyms

NRC	Nuclear Regulatory Commission
O/W	Oil/Water
OB	Open Burning
OD	Open Detonation
ODUSD(I&E)	Office of the Deputy Under Secretary of Defense for Installations and Environment
OMA	Operations and Maintenance Account
ORC	Oxygen Release Compound
OWS	Oil and Water Separator
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
PAIO	Plans, Analysis and Integration Office
PBA	Performance-Based Acquisition
PBC	Performance-Based Contract
PMP	Project Management Plan
POL	Petroleum, Oil and Lubricants
ppb	parts per billion
PRG	Preliminary Remediation Goal
PWS	Performance Work Statement
PX	Post Exchange
QAPP	Quality Assurance Project Plan
QASP	Quality Assurance Surveillance Program
RA	Remedial Action
RA(C)	Remedial Action - Construction
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering and Requirements
RBC	Risk Base Concentration
RBCA	Risk-Based Corrective Action
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Cyclotrimethylenetrinitramine
REC	Record of Environmental Consideration
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RFP	Request for Proposal
RI	Remedial Investigation
RIP	Remedy-in-Place
ROD	Record of Decision
RRSE	Relative Risk Site Evaluation
RTC	Response to Comments
S&A	Supervision and Administration
SAR	SWMU Assessment Report
SARA	Superfund Amendments and Reauthorization Act
SC	Signal Corps
SCARNG	South Carolina Army National Guard



## Acronyms

SCDHEC	South Carolina Department of Health and Environmental Control
SI	Site Inspection
SOB	Statement of Basis; RCRA equivalent of DD
SOW	Statement of Work
STEP	Status Tool of the Environmental Program
SVE	Soil Vapor Extraction
SVOC	Semi-Volatile Organic Compound
SW	Solid Waste
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TBD	To Be Determined
TCA	Trichloroethane
TCE	Trichloroethylene
TRC	Technical Review Committee
ug/L	microgram per liter
UIC	Underground Injection Control
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USAEHA	United States Army Environmental Hygiene Agency
USATECES	US Army Technical Center for Explosives Safety
USATHAMA	US Army Toxic and Hazardous Materials Agency
USC	US Code
USEPA	US Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VA	Veterans Administration
VOC	Volatile Organic Compound
WLA	Weston Lake Area
WP	Work Plan

## Acronym Translation Table

### CERCLA

Preliminary Assessment(PA)  
 Site Inspection(SI)  
 Remedial Investigation/Feasibility Study(RI/FS)  
 Remedial Design(RD)  
 Remedial Action (Construction)(RA(C))  
 Remedial Action (Operation)(RA(O))  
 Long Term Management(LTM)  
 Interim Remedial Action(IRA)

### RCRA

= RCRA Facility Assessment(RFA)  
 = Confirmation Sampling(CS)  
 = RCRA Facility Investigation/Corrective Measures Study(RFI/CMS)  
 = Design(DES)  
 = Corrective Measures Implementation (Construction)(CMI(C))  
 = Corrective Measures Implementation (Operation)(CMI(O))  
 = Long Term Management(LTM)  
 = Interim Measure(IM)

### CERCLA

Preliminary Assessment(PA)  
 Remedial Investigation(RI)  
 Feasibility Study(FS)  
 Remedial Design(RD)  
 Remedial Action (Construction)(RA(C))  
 Remedial Action (Operation)(RA(O))  
 Long Term Management(LTM)  
 Interim Remedial Action(IRA)

### RCRA Underground Storage Tank (UST) Site Phase Terms

= Initial Site Characterization(ISC)  
 = Investigation(INV)  
 = Corrective Action Plan(CAP)  
 = Design(DES)  
 = Implementation (Construction)(IMP(C))  
 = Implementation (Operations)(IMP(O))  
 = Long Term Management(LTM)  
 = Interim Remedial Action(IRA)

## Site Alias List

### AEDB-R Site ID to Alias List

<b>AEDB-R #</b>	<b>Alias</b>
CCAOC Q	AOC Q
CCSWMU 53	SWMU 53
CCUST 11-559	11-559
CCUST 1699	JACF920001
CCUST 2089	2089
CCUST 3499	3499
CCUST 4120	JACF920001
CCUST AOC T	AOC T
CCUST4522	JACF920001
FTJA-003-R-01	AOC F
FTJA-004-R-01	AOC G
FTJA-005-R-01	AOC H
FTJA-006-R-01	AOC I
FTJA-007-R-01	AOC J
FTJA-01	SWMU 1
FTJA-011-R-01	AOC S
FTJA-02	SWMU 2
FTJA-03	SWMU 3
FTJA-05	SWMU 5
FTJA-06	SWMU 6
FTJA-13	SWMU 14
FTJA-21	SWMU 21
FTJA-23	SWMU 23
FTJA-32	SWMU 48
FTJA-34	USTs(ER,A)
FTJA-39	SWMU 49
PBA@MR Jackson	FTJAPBA@MR

## Installation Information

### Installation Locale

**Installation Size (Acreage):** 52301

**City:** Columbia

**County:** Richland

**State:** South Carolina

### Other Locale Information

The US Army Garrison, FTJA is located in Richland County in central South Carolina. The installation is situated on the eastern edge of the city of Columbia, and covers an area of approximately 52,301 acres.

### Installation Mission

The primary mission of the US Army Garrison and FTJA is the initial entry training of troops and combat support advanced individual training.

### Lead Organization

IMCOM

### Lead Executing Agencies for Installation

US Army Corps of Engineers (USACE), Savannah District

### Regulator Participation

#### Federal

US Environmental Protection Agency (USEPA), Region IV, and Federal Facilities Branch

#### State

South Carolina Department of Health and Environmental Control (SCDHEC), Bureau of Land and Waste Management

### National Priorities List (NPL) Status

FORT JACKSON is not on the NPL

### Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

The community has expressed no sufficient, sustained interest in a RAB.

### Installation Program Summaries

#### IRP

**Primary Contaminants of Concern:** Explosives, Metals, Munitions constituents (MC), Pesticides, Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

**Affected Media of Concern:** Groundwater, Sediment, Soil, Surface Water

#### MMRP

**Primary Contaminants of Concern:** Munitions and explosives of concern (MEC), Munitions constituents (MC)

**Affected Media of Concern:** Groundwater, Soil

#### CR

**Primary Contaminants of Concern:** Other (Chloroform, Dieldrin), Other (Free-product), Other (Napthalene), Petroleum, Oil and Lubricants (POL), Volatiles (VOC)

**Affected Media of Concern:** Groundwater, Soil

## 5-Year / Periodic Review Summary

### 5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	201010	201109	2011

### Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
Decison Document for FTJA-05	FTJA-05

**Results** All remedies still effective and in place.

**Actions** None

**Plans** Reevalue in five years.

### Recommendations and Implementation Plans:

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## Land Use Control (LUC) Summary

**LUC Title:** FTJA-05 LUC

**Site(s):** FTJA-05

**ROD/DD Title:** Decision Document for FTJA-05

**Location of LUC**

FTJA-05 (SWMU 5) ARCADIS TO PERFORM INSPECTIONS/REPORTS THROUGH 201209.

**Land Use Restriction:** Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Landfill restriction - Prohibit excavation on LF cap or cover system, Landfill restriction - Prohibit installation of utility system lines through the site, Landfill restriction - Restrict construction of buildings that may interfere with LF cap or cover system, Landfill restriction - Restrict plantings that interfere LF cap or cover system (roots that penetrate the cap or cover system), Landfill restriction - Restrict vehicular traffic

**Types of Engineering Controls:** Fences, Signs

**Types of Institutional Controls:** Construction Permit, Dig Permits, Notations in Master Plan, Restrictions on Groundwater Withdrawal, Restrictions on land use

**Date in Place:** 200605

**Modification Date:** N/A

**Date Terminated:** N/A

**Inspecting Organization:** Installation

**Record of LUC:** Master Plan or Equivalent

**Documentation Date:** 200909

**LUC Enforcement:** Annual Inspections, 5 Year Reviews, Other

**Contaminants:** METALS, VOC

**Additional Information**

RDX in groundwater exists at more than one groundwater well.

## Cleanup Program Summary

### Installation Historic Activity

FTJA is an active US Army installation. The installation provides basic training for newly recruited Soldiers and combat support advanced individual training. It is the largest initial entry training center in the Army. In addition, the installation operates the US Army Soldier Support Institute, the US Army Chaplain Center and School, a reception battalion and a transfer point for US Army personnel. The FTJA provides support services for the South Carolina Army National Guard (SCARNG), the US Army Reserve Centers, and other tenant activities.

The FTJA was first opened in 1917 as the 6th National Army Cantonment on a tract of land donated by the citizens of the city of Columbia. By 1918, some 45,000 military personnel were actively training at Camp Jackson. From 1925 to 1940 the facility was state-controlled and used as an encampment and training area for SCARNG troops. The FTJA returned to federal control in 1940 and was once again designated primarily for infantry training. During World War II, at least 10 Army infantry divisions, estimated at 500,000 troops, received training at FTJA. In 1947, the installation was designated as one of four permanent Army replacement centers in the US. In 1968, the installation was annexed into the city of Columbia, and in 1973 it was redesignated as the US Army Training Center and FTJA. More recently, FTJA was redesignated as US Army Garrison and Fort Jackson.

FTJA presently occupies approximately 52,301 acres. It consists of the original cantonment area in the west section of the installation and the weapon ranges, bivouac, and maneuver areas located throughout the remaining installation. The cantonment area encompasses post housing, administrative buildings, and industrial operations.

Tenants located at FTJA include the US Army Soldier Support Institute, DoD Chaplain Center and School, the SCARNG, US Marine Corps Reserve, Defense Reutilization and Marketing Office (DRMO), Military Entrance Processing Station, US Army Reserve 81st Regional Support Group, 157th Infantry Training Support Brigade, Defense Commissary Agency, Army and Air Force System Exchange, Medical Department Activity, and the Academy for Credibility Assessment (formerly the Department of Defense (DoD) Polygraph Institute).

In 1988, the Army began investigating all potential areas of environmental concern at FTJA by implementing its environmental response authority under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)/ Superfund Amendments and Reauthorization Act (SARA). Having a preliminary hazard ranking system (HRS) score of 13.2, FTJA did not warrant NPL redesignation.

In October 1991, FTJA was issued a Resource Conservation and Recovery Act (RCRA) Part B permit. Under the corrective action portion of the permit, investigation of inactive or closed sites re-designated as solid waste management units (SWMUs) and other AOCs were initiated. A modification to the RCRA permit was completed in June 2006. The modification was primarily an update of the site listings to reflect cleanup progress. An application for renewal of the RCRA permit was submitted to the SCDHEC in fiscal year (FY)08. The application package was amended and re-submitted in early January 2009. Permit modification was achieved by April 2009. Permit renewal was issued March 2010. Another permit modification was implemented to add the final remedies for FTJA-001-R-01, FTJA-002-R-01 and FTJA-39. Statements of Basis (SOBs), the RCRA equivalent of DDs, were submitted for public review. The public comment period ended March 17, 2011 and the modified permit was signed April 17, 2011.

The site inspection (SI) for Military Munitions Response Program (MMRP) sites was physically completed in 2006. The revised final SI report received additional comments in late 2008. The revisions were approved by the SCDHEC in May 2009.

Five sites were recommended for RFI. A performance-based acquisition (PBA) to address these sites was awarded in September 2009. A PBA kickoff meeting was held at FTJA in October 2009. USAEC, three Corps Districts (Savannah, Huntsville, and Charleston) and the installation restoration program (IRP) manager participated in a morning session. The SCDHEC was invited to join in the afternoon portion and they attended.

The project management plan (PMP) and a quality assurance surveillance plan (QASP) were approved since the original drafts from December 2009. CH2MHill prepared the draft RFI work plan (WP) by spring of 2010. After several iterations of Army and USACE - Huntsville (HNC) comments, the Final Draft was submitted to SCDHEC in early March 2011. Fieldwork for the five MMRP sites started in the summer of 2011. It was completed by fall of 2011, followed by the hefty individual RFI Reports. The RFI Reports have all been thoroughly reviewed by FTJA, the Huntsville Corps, the US Army Technical Center for Explosives Safety (USATECES), the Department of Defense Explosives Safety Board (DDSB) and then SCDHEC. All five reports are anticipated to be approved this fiscal year.

One of the MMRP sites (FTJA-007-R-01/AOC J) and CCUST 1699 may reach RIP/RC by the end of FY13 under the Phase II

## Cleanup Program Summary

### Installation Historic Activity

PBA with CH2MHill.

### Installation Program Cleanup Progress

#### IRP

**Prior Year Progress:** The performance-based contract (PBC) continues long-term management (LTM) for nine sites. The RIP/RC is complete for FTJA-39, and the CMI Progress Report is underway. LTM will continue there at all nine IR sites. RACER and CTC documentation and AEDB-R funding requirements/programming were all performed in FY12 and must be redone directly to move the projects forward.

**Future Plan of Action:** LTM work will continue under the PBC through the end of FY13. LTM sites will continue to require dermal soil maintenance, LUCs and groundwater monitoring until we can get new rulings. A request for NFA was submitted for FTJA-06 and FTJA-21.

#### MMRP

**Prior Year Progress:** The five RFIs should be approved/conclude for munitions response (MR) sites. CMI work plan completions/approvals (RIP/RC) are anticipated in 2013 for AOCs D, E and J, as well as funding and contracting for the SI, is expected in FY13 for the new MR site, AOC S.

**Future Plan of Action:** The CMS/CMI work should be contracted by FY14 and completed after a couple of iterations of SCDHEC comments/responses by FY15. The SI for AOC S (FTJA-011-R-01) is also expected to be contracted out by FY14. By FY16, any LTM requirements should be known for all MR sites. Presently, only LUCs and annual inspections are anticipated.

#### CR

**Prior Year Progress:** New CR sites require INV (CCSWMU 53, CCAOC T). RACER/CTC/AEDB-R cost requirement updates underway. INV to start when funds received. Contract awards are expected by late 2013. RIP/RC for CCUST 1699 is expected by FY14. AOC Q may require more CS when SCDHEC notes the recent 2012 Assessment Report (indicates Dieldrin and Chloroform exceedances in creek - not expected). New funding may be required for CCAOC Q.

**Future Plan of Action:** To complete all INV - RA phase at UST sites. CCUST 4522 is in CMI(O) and should be in LTM by FY14, after installation of ORC Socks, plus additional MNA sampling that is required at this recreational lake site. New investigation and remediation work will begin upon receipt of funding in FY13. By FY15, RIP or RC are expected overall. Much funding, contracting, sampling and documentation remains to be completed first.



**FORT JACKSON**  
**Army Defense Environmental Restoration Program**  
**Installation Restoration Program**

## IRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 40/29

### Installation Site Types with Future and/or Underway Phases

1	Contaminated Ground Water (FTJA-13)
1	Disposal Pit/Dry Well (FTJA-32)
6	Landfill (FTJA-01, FTJA-02, FTJA-03, FTJA-05, FTJA-06, FTJA-21)
2	Underground Storage Tank (FTJA-34, FTJA-39)
1	Unexploded Munitions/Ordnance (FTJA-23)

### Most Widespread Contaminants of Concern

Explosives, Metals, Munitions constituents (MC), Pesticides, Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

### Media of Concern

Groundwater, Sediment, Soil, Surface Water

### Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTJA-28	BLDG 9428 WASH PAD & O/W IRA SEPARATOR		WASTE REMOVAL - SOILS	2003
FTJA-28	BLDG 9428 WASH PAD & O/W IRA SEPARATOR		REMOVAL	2003
FTJA-34	FORMER UST CONTAMINATION AREAS	IRA	WASTE REMOVAL - SOILS	2003
FTJA-01	Active Sanitary Landfill	IRA	OTHER	2006
FTJA-02	CLOSED SANITARY LANDFILL 1	IRA	OTHER	2006
FTJA-13	FORMER WEAPONS CLEANING AREA	FRA	NATURAL ATTENUATION	2006
FTJA-13	FORMER WEAPONS CLEANING AREA	IRA	BIOREMEDIATION - IN SITU	2006
FTJA-21	INACTIVE RANGE 17 LANDFILL	IRA	REMOVAL	2006
FTJA-23	OLD REMAGEN IMPACT RANGE	FRA	INSTITUTIONAL CONTROLS	2006
FTJA-001	PBC FORT JACKSON PBC	FRA	OTHER	2007
FTJA-03	CLOSED SANITARY LANDFILL 2, SWMU 3	IRA	INSTITUTIONAL CONTROLS	2007
FTJA-06	INACTIVE TANK HILL LANDFILL	IRA	OTHER	2007
FTJA-30	FORMER ROADS & GROUNDS STORAGE AREA	IRA	REMOVAL	2007
FTJA-34	FORMER UST CONTAMINATION AREAS	FRA	SOIL VAPOR EXTRACTION	2007
FTJA-03	CLOSED SANITARY LANDFILL 2, SWMU 3	FRA	CAPPING	2008
FTJA-06	INACTIVE TANK HILL LANDFILL	FRA	CAPPING	2008
FTJA-21	INACTIVE RANGE 17 LANDFILL	FRA	OTHER	2008
FTJA-01	Active Sanitary Landfill	FRA	INSTITUTIONAL CONTROLS	2009

## IRP Summary

### Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTJA-02	CLOSED SANITARY LANDFILL 1	FRA	OTHER	2009
FTJA-06	INACTIVE TANK HILL LANDFILL	FRA	NATURAL ATTENUATION	2010
FTJA-39	INACTIVE WEAPONS POOL TANK	FRA	NATURAL ATTENUATION	2011
FTJA-39	INACTIVE WEAPONS POOL TANK	IRA	REMOVAL	2011

### Duration of IRP

**Date of IRP Inception:** 198708

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201109/201709

**Date of IRP completion including Long Term Management (LTM):** 204309

# IRP Contamination Assessment

## Contamination Assessment Overview

FTJA has a total of 40 IRP sites listed in the AEDB-R. Some AEDB-R 'sites' include multiple project sites. For example, AEDB-R site FTJA-07 includes three SWMUs (7, 8, and 9 combined) and FTJA-34, which actually includes 13 UST sites, designated as one AEDB-R number (all 13 are RIP/RC as of FY12). There are still 11 AEDB-R sites with detectable groundwater contamination. Delineation and risk assessment of these units is complete for all sites. Eleven of these sites will require future groundwater monitoring (FTJA-01, -02, -03, -05, -06, -13, -21, -23, -32, -34 and -39).

Site FTJA-001 is strictly a fiscal data site where the unexercised funds for the PBC are tracked. It is closed as of this datacall.

There are now 29 AEDB-R sites with no further action (NFA) planned, RC, or no further remedial action planned (NFRAP). Most recently AOC K received a requested NFA decision from SCDHEC at the end of FY11.

In FY07, FTJA-40 received SCDHEC concurrence for NFA. From FY05 through early FY06, FTJA gained four additional NFRAP designations (FTJA-07, -08, -28 and -38). For FY03 two sites reached RC (FTJA-20 and 37), in FY01 five sites reached RC (FTJA-09, -26, -27, -31, and -33) and in FY99 sites FTJA-13 and FTJA-16 reached RC.

The restoration sites at FTJA include landfills (LF), weapons cleaning/solvent sites, acid neutralization drainage sites, USTs and explosive ordnance disposal (EOD) sites.

The FTJA's primary contaminants are metals (lead, chromium, arsenic, etc.), petroleum hydrocarbons (fuels, oil, and lubricants), solvents [trichloroethylene (TCE) and others], plus ordnance constituents [i.e., cyclotrimethylenetrinitramine (RDX), etc.]. These substances are found in varying concentrations, sometimes above USEPA/SCDHEC criteria at each of the particular active SWMUs, AOCs, and UST sites.

There is still no known off-post contamination and none has been documented.

An overall score of 13.8 was computed for FTJA during the RFA. That score is well below the NPL cut-off value.

No public interest in the IRP has been expressed after periodic advertisements soliciting interest in forming a RAB, per DoD and regulatory guidelines.

On Oct. 5, 1991 the RCRA permit became effective. In accordance with RCRA permit guidelines, between December 1991 and April 1992 WPs were prepared and submitted to the USEPA and the SCDHEC for CS, the RCRA equivalent of SI, and RFI, the equivalent of CERCLA RI.

At that time 48 SWMUs and two AOCs were identified. Additional sites have been identified since then (current total: 53 SWMUs, 20 AOCs and 51 USTs). Eleven AOCs were added to AEDB-R as part in recent years (one this year) of the MMRP and one under the CR roster. Three additional UST sites need added for FY12.

Many documents on INVs and Remediation Actions have been prepared, reviewed and eventually approved. Over the life of the IRP at FTJA, >80 NFAs have been achieved.

## Cleanup Exit Strategy

The award of the PBA to ARCADIS accelerated the IRP progress. Turnaround times under the PBC are shorter than in previous decades.

The rate of progress is still dictated by the regulatory response (SCDHEC-review documents. Availability of funds has been facilitated by excellent support from the USAEC.

Regulatory review time to approve proposed work continues to be enhanced through Tier I Partnering. The SCDHEC turnover has continued, but is attenuated by senior managers covering in the interim of their learning curves (four project managers and five hydrogeologists in five years.) The SCDHEC aided the effort heroically, to meet the PBC contract date goal of September 2008.

The USAEC interaction increase has continued since the PBA award. This stimulates the involvement of FTJA management. Current efforts continue to seek final remedies using aggressive interim measures (IMs) at all FTJA sites.

## IRP Contamination Assessment

Site FTJA-01 is the youngest and FTJA-02 is the oldest inactive municipal LF. They required partial supplemental soil cover, enhanced drainage controls, LUCs and LTM. RIP/RC is in place and LTM is underway for both sites. FTJA-01 is regulated by the RCRA C and RCRA D sections of SCDHEC which makes reporting and compliance more complex.

Site FTJA-03 is the largest municipal LFLF (100 acres) at FTJA. Substantial grading and cover work was completed as required. ARCADIS supplemented the existing cover as required and established LUCs including LTM, and signage at the entire site.

Sites FTJA-13 and FTJA-36 are adjacent sites with commingling TCE and diesel GW plumes. The TCE plume was treated by enhanced reductive dechlorination (ERD). Site FTJA-36 is primarily a former diesel-release site with former light non-aqueous phase liquid (LNAPL) accumulations and dissolved TCE in the GW, migrating from FTJA-13. ARCADIS performed soil and LNAPL removal at FTJA-36 and an NFA letter for FTJA-36 was received in August 2009. FTJA-13 is under LTM/MNA using the GW monitoring network covering both sites.

Sites FTJA-06 and FTJA-21 are construction and debris (C&D) LFs. IMs performed in FY07 at both sites, addressed the physical closure requirements. This included recycling of metal debris and all surficial and some buried concrete. A CMI was completed for both sites adding LUCs, LTM and RCRA Permit and Master Plan documentation.

Site FTJA-32 had POL and metals contamination in soil and GW. After two separate rounds of pre-PBA IM, the majority of source materials were removed. ARCADIS grouted in the floor drains used by the former SWMU activity, to satisfy residual SCDHEC concerns. A CMI was approved/executed. It includes LTM and LUCs.

Site FTJA-39. The goal has been to reach MNA under the PBC. This appears to have been accomplished after the CMI WP was approved and implemented in 2011. The site is now in MNA with the 4th quarter sampling/CMIP Progress Report pending.

Investigations for all the aforementioned sites, are complete or conditionally approved by the SCDHEC (Approval of the recommended final remedies).

## IRP Previous Studies

	Title	Author	Date
1980	Installation Assessment of FTJA, Report No. 165	US Army Toxic and Hazardous Materials Agency (USATHAMA)	MAR-1980
1988	Update of the Initial Installation Assessment	USATHAMA	APR-1988
1989	Interim Final Report, Hazardous Waste (HW) Consultation No. 37-26-0215-89, Evaluation of SWMUs	US Army Corps of Engineers	SEP-1989
1990	Phase I Site Investigation Report for RI/FS Weapons Cleaning Area.	Law Environmental, Inc. (LAW)	JAN-1990
	GW Quality Study No. 38-26-8822-90	USAEHA	FEB-1990
	Final WP for RI/FS Weapons Cleaning Area	LAW	FEB-1990
	Final Pre-Investigation Submittal for RI/FS Weapons Cleaning Area.	LAW	FEB-1990
	RFA Report of FTJA, USEPA Contract No. 68-W9-0040	A.T. Kearney, Inc.	MAY-1990
1991	Project Master WP, Facility Investigation Active Ordnance Disposal Site (RST4)	Donohue & Associates, Inc. (Donohue)	JAN-1991
	Revised Chemical Data Acquisition Plan, Addendum to Project Master WP, Facility Investigation Active Ordnance Disposal Site (RST4)	Donohue	MAR-1991
	Final Quality Control Summary Report for Abandoned Sewage Treatment Plant	LAW	AUG-1991
	Final WPs for RFI at Wonson/Inchon Explosive Ordnance Disposal Sites	LAW	SEP-1991
	Final Site Investigation for Abandoned Sewage Treatment Plant	LAW	NOV-1991
	Final Report for RI, Phase II - Weapons Cleaning Area.	LAW	NOV-1991
1992	Preliminary SI for FTJA Military Reservation	Advanced Sciences, Inc. (ASI)	JAN-1992
	Quality Control Summary Report for RFI at Wonson/Inchon Explosive Disposal Sites	LAW	JAN-1992
	Final Site Investigation Report, Facility Investigation Active Ordnance Disposal Site (RST4)	Donohue	MAR-1992
	Preliminary SI Report for FTJA Military Reservation	ASI	MAY-1992
	Hazard Ranking System Score Summary Report	ASI	JUL-1992
	Final Engineering Report Soil and GW Testing at Three UST Locations	Ebasco Environmental	AUG-1992
1993	Quality Control Summary Report for RFI/CMS Wonson and Inchon Explosive Ordnance Disposal Sites	LAW	MAY-1993
	Revised Phase III RFI/CMS WP Weapons Cleaning Area	RUST Environmental and Infrastructure (RUST)	SEP-1993
	Draft RFI/CMS WP for Unit Training Equipment Site Septic Tank Systems at SC National Guard	Kleen Sites Geoservices, Inc	SEP-1993

## IRP Previous Studies

Title	Author	Date
<b>1993</b>		
CS WPs for 14 SWMUs and AOC C	CESAS - Corps of Engineers Division of Hazardous, Toxic & Radioactive Waste Section	SEP-1993
Revised RFI/CMS WPs for 14 SWMUs	Ecology and Environment, Inc. (E&E)	DEC-1993
<b>1995</b>		
Revised Site Assessment WP for Ten UST Sites	E&E	FEB-1995
7 UST Site Investigation WPs	Bregman & Company, Inc. (Bregman & Co.)	JUN-1995
Revised CS WPs for 14 SWMUs and AOC C	CESAS	SEP-1995
<b>1996</b>		
Site Investigation WPs for 1 UST Site & 1 AST	Foster-Wheeler	FEB-1996
CS Report for 14 SWMUs and AOC C	E&E	MAY-1996
RCRA Closure Sampling Report, 48th Explosive Ordnance Detachment Demolition Range Open Burn/Open Detonation (OB/OD) Unit	E&E	MAY-1996
10 UST Phase II Site Investigation WPs	CESAS	JUN-1996
Site Investigation WPs for 1 UST Site & 1 AST	Foster-Wheeler	NOV-1996
<b>1997</b>		
Phase II Site Assessment Reports for 10 UST Sites	E&E	JUL-1997
CS Reports for 14 SWMUs and AOC C	E&E	JUL-1997
Draft Final Investigation Derived Waste Management Plan	CESAS	JUL-1997
Subsurface Investigation Report for Relative Risk Ranking of Six SWMU Sites. Prepared by CESAS	CESAS	OCT-1997
Plan of Operation for Interim Removal Action Free Product Recovery Phase III RFI Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	NOV-1997
<b>1998</b>		
RFI Report for SWMU 47, Former Roads and Grounds Storage Area	E&E	MAR-1998
CS Report for SWMUs 7, 8, and 9, Former HW Storage Bldg. 2640, 2641, 2642.	Fort Jackson	APR-1998
RFI Report for SWMU 10, Former PCB Storage Bldg	E&E	APR-1998
RFI Report for SWMUs 1, 2, 3, Inactive Landfills 3, 1, and 2	E&E	MAY-1998
Addendum Number One to RCRA Closure Sampling Report, 48th Explosive Ordnance Detachment Demolition Range OB/OD Unit	E&E	JUL-1998
Phase III Site Assessment WP for 5 UST Areas	E&E	JUL-1998
WP for Treatability Study in Support of Remediation by Natural Attenuation at Site 9431-F (Site No. 6)	Parsons Engineering	JUL-1998
WP for Completion of GW Sampling and CAPs at UST Nos. 1 and 6.	E&E	JUL-1998

## IRP Previous Studies

	Title	Author	Date
1998	RFI Report for SWMUs 6, 20, 21, 23, 30, and 48	E&E	AUG-1998
	Pre-Final Phase EEE RFI Report Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	DEC-1998
1999	WP Addendum No. 2 for Phase II RFI, Wonson and Inchon Explosive Ordnance Disposal Sites (SWMUs 12 and 17)	LAW	JAN-1999
	WP for the Phase I RFI at SWMU 49, Weapons Pool Inactive Solvent Tank, Building 3058	E&E	FEB-1999
	RCRA Closure Certification Report, 48th Explosive Ordnance Detachment Demolition Range OB /OD Unit, SWMU 13	E&E	MAY-1999
	IM WP, Inactive Acid Pit, SWMU 48	Omega Environmental Services	AUG-1999
	CS Report-Comment Responses and Revisions, SWMUs 7, 8, and 9	E&E	AUG-1999
	Supplemental CS Report Comment Responses and Revisions, SWMUs 5, 11, 29, 33, 34, 38, and AOC C	E&E	AUG-1999
	Phase I RFI/CMS WP for SWMUs 1, 2, and 3	E&E	AUG-1999
	Progress Report Phase II RFI, Wonson and Inchon Explosive Ordnance Disposal Sites (SWMU 12 and 17)	LAW	AUG-1999
	Groundwater Monitoring Report for the Phase III RFI Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	AUG-1999
	Interim Technical Report Phase II RFI, Wonson and Inchon Explosive Ordnance Disposal Sites (SWMUs 12 and 17)	LAW	AUG-1999
	Comment Responses and Revisions Phase III RFI Report, Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	SEP-1999
	WP for Background Study	E&E	NOV-1999
2000	IMs WP, Inactive Acid Pit, SWMU 48	Omega Environmental Services	JAN-2000
	Draft Phase III RFI WP Addendum, Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	MAY-2000
	IMs WP, Former Bldg. 9428 Wash Pad & O/W Separator, SWMU 38	Omega Environmental Services	MAY-2000
	IMs WP Former Roads and Grounds Storage Area, SWMU 47	Omega Environmental Services	JUN-2000
	Phase II RFI WP for SWMUs 6, 20, 21, 23, and 30	E&E	NOV-2000
	Comment Responses and Revisions Phase III RFI WP Addendum, Former Weapons Cleaning Area (SWMU#14) Above-Ground Fuel Tank Area (AOC B)	RUST	NOV-2000
	Draft Soil Background Study Report	E&E	NOV-2000
	Supplemental IMs WP, Inactive Acid Pit, SWMU 48	J.J. Sosa	NOV-2000
2001			



## IRP Previous Studies

2001

Title	Author	Date
Phase II RFI WP, SWMUs 1, 2, and 3 (Closed Landfills 3, 1, and 2, respectively)	CH2MHill	JAN-2001
Final Soil Background Study Report	E&E	JAN-2001
Draft Phase II RFI Report, Wonson and Incheon Explosive Ordnance Disposal Sites (SWMUs 12 and 17)	LAW	JAN-2001
SWMU 49 Phase I RFI Report Review Response to Comments (RTC)/Rev. Pgs.	E&E	APR-2001
Letter of Intent to Sell Property	Ft. Jackson Environmental Mgt Office	JUN-2001
SWMU 47 IM Report	CESAS	JUN-2001
SWMU 14/AOC B, Quarterly Report for Addendum No. 1 Phase III RFI Report	Earthtec	JUN-2001
SWMU 14/AOC B, Quarterly Report for Addendum No. 1 Phase III RFI Report	Earthtec	AUG-2001
SWMU 49 IM and Phase II RFI WP	CESAS	AUG-2001
SWMU 47 IM Report	CESAS	AUG-2001
SWMU 14/AOC B, Quarterly Report for Addendum No. 1 Phase III RFI Report	Earthtec	NOV-2001
Single Soldiers Barracks Complex (FTJA-38) Assessment Report	Foster-Wheeler	NOV-2001
SWMUs 6, 20, 21, 25, 30 Phase II RFI WP	E&E	NOV-2001
SWMU 30 Phase II RFI Report.	E&E	DEC-2001
SMWU 14/AOC B, Quarterly Report for Addendum No. 1 Phase III RFI Report	Earthtec	DEC-2001
SWMU 16 CS Report Evaluation of RTCs	CESAS	DEC-2001

2002

SMWU 49 IM WP Revised	CESAS	JAN-2002
SWMU 51 SWMU Assessment Report	Ft. Jackson Environmental Mgt Office	JAN-2002
SMWU 51 Removal Action (IM) WP	Ft. Jackson Environmental Mgt Office	JAN-2002
SMWU 5 LTM Proposal	Ft. Jackson Environmental Mgt Office	APR-2002
SMWU 12 & 17 Final Phase II RFI Report.	LAW	APR-2002
SWMU 30 Phase II RFI Report	E&E	MAY-2002
SWMUs 1, 2, 3, Phase II RFI WP- Revised	CH2MHill	JUN-2002
SWMUs 7-10 RFI WP Responses to SCDHEC Comments	CH2MHill	AUG-2002
SWMU 47 Final Phase II RFI Report	CESAS	AUG-2002
SWMU 49 Final Phase II RFI Report.	CESAS	AUG-2002
SWMU 51 IM WP	CESAS	AUG-2002
SWMU 48 Final Supplemental IM WP	J.J. Sosa	SEP-2002
AOC B Letter of Tanks & Contaminant Barriers Removal.	Ft. Jackson Environmental Mgt Office	OCT-2002

## IRP Previous Studies

2002

Title	Author	Date
SWMU 14/AOC B Final Phase II RFI Report Addendum #1 and Response to SCDHEC Comments	Earthtec	OCT-2002
SWMU 20 Phase II RFI Report.	E&E	DEC-2002
SWMU 21 Phase II RFI Report	E&E	DEC-2002
SWMU 23 Phase II RFI Report	E&E	DEC-2002
SWMUs 1, 2, 3, Revised Final Phase II RFI WP with responses to SCDHEC Comments Revised	CH2MHill	DEC-2002

2003

AOC B IM/Sampling WP	CESAS	JAN-2003
SWMUs 1, 2, 3 Revised Final Phase II RFI WP RTCs & Replacement Pages	CH2MHill	FEB-2003
SWMU 38 IM Report	OMEGASYS	MAR-2003
SWMU 49 Phase II RFI/IM Report Final	CESAS	MAR-2003
SWMU 51 IM Report	CESAS	MAR-2003
SWMU 6 Phase II RFI Report	E&E	MAR-2003
SWMU 14/AOC B Final Phase III RFI Addendum No. 1 Report Replacement Pages	Earthtec	APR-2003
SWMU 30 Phase II RFI Report, Replacement Pages/RTCs	E&E	APR-2003
SWMUs 12 & 17 Phase II RFI Report Replacement Pages/RTCs	LAW	APR-2003
SWMU 16 Remediation Report	CESAS	MAY-2003
SWMU 47 IM Report RTCs and Rev. pp	CESAS	MAY-2003
SWMU 52 Assessment Report	Ft. Jackson Environmental Mgt Office	MAY-2003
SWMU 20: Phase II RFI Report (RTCs & Revision Pp)	E&E	MAY-2003
SWMU 51: IMs Report (RTCs & Rev.Pp)	CESAS	JUL-2003
SWMU 38: IM Report (RTCs & Revision Pages)	CESAS	JUL-2003
SWMU 12: IM WP	J.J. Sosa	AUG-2003
SWMU 23: IM WP	J.J. Sosa	AUG-2003
SWMU 23: IM WP	J.J. Sosa	AUG-2003
SWMU 10: RFI Report Addendum	CH2MHill	AUG-2003
SWMU 10: RFI Report Addendum	CH2MHill	AUG-2003
SWMU 23: Phase II RFI Report	E&E	AUG-2003
SWMU 21: Phase II RFI Report (RTC)	E&E	OCT-2003
SWMU 5: Report summarizing well sampling activities.	CESAS	OCT-2003
SWMU 48: IM Report (RTCs & Revision Pages).	J.J. Sosa	OCT-2003

2004

Landfill Cover Assessment (SWMUs 1, 2, 3, 5, 6, 21)	ARCADIS	FEB-2004
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## IRP Previous Studies

2004

Title	Author	Date
Site-Wide Field Sampling Plan	ARCADIS	MAR-2004
SWMU 23: Revised Final IM WP	J.J. Sosa	APR-2004
SWMU 14 & AOC B: IM WP	ARCADIS	MAY-2004
SWMU 23: Phase II RFI Report (Revision pp & RTCs)	E&E	MAY-2004
SWMU 5: Letter Report (RTCs)	CESAS	JUN-2004
SWMU 48: Revised Final IM Report	J.J. Sosa	JUN-2004
SWMU 6: Revised RFI Report & RTCs	E&E	JUN-2004
SWMU 21: Phase II RFI Report (Revision Pages & RTCs).	E&E	JUN-2004
SWMU 14 & AOC B: IM WP	ARCADIS	JUL-2004
SWMU 5: Focused CMS WP	ARCADIS	JUL-2004
Site-Wide: Quality Assurance Project Plan	ARCADIS	JUL-2004
Site-Wide: RTCs on the Facility Sampling Plan	ARCADIS	JUL-2004
SWMU 16: Final CS Report & RTCs	Ft. Jackson Environmental Mgt Office	JUL-2004
SWMU 2: Phase II RFI Report	CH2MHill	JUL-2004
Site-Wide: Letter Regarding LUCs.	Ft. Jackson Environmental Mgt Office	JUL-2004
SWMU 47: IM WP	ARCADIS	AUG-2004
SWMU 48: Phase II RFI WP	E&E	AUG-2004
Site-Wide: RTCs to the QAPP	ARCADIS	SEP-2004
SWMU 47: Phase II RFI Report RTCs	CESAS	SEP-2004
Jenkins Street Point of Interest: SWMU Assessment Report (SAR)	Ft. Jackson Environmental Mgt Office	SEP-2004
SWMU 52: RTCs & Revised SAR	ARCADIS	OCT-2004
Site-Wide: Revised Field Sampling Plan	ARCADIS	OCT-2004
SWMU 44: Proposed Supplemental RFI Activities	Kleen Sites Geoservices, Inc.	OCT-2004
SWMU 44: Proposed Supplemental RFI Activities	Kleen Sites Geoservices, Inc.	OCT-2004
SWMU 5: Focused CMS Report & CMI WP	ARCADIS	NOV-2004
SWMU 5: Focused CMS Report & CMI WP	ARCADIS	NOV-2004
SWMU 2: RTCs to the Phase II RFI Report	ARCADIS w/ CH2MHill	NOV-2004
SWMU 48: IM Report (RTCs & Revision Pages)	J.J. Sosa	NOV-2004
SWMU 48: IM Report (RTCs & Revision Pages)	J.J. Sosa	NOV-2004
Site-Wide: Historical Records Review (HRR)	Malcolm Pirnie	DEC-2004
SWMUs 1 & 2: IM WP	ARCADIS	DEC-2004
SWMU 44: Revised Proposed Supplemental RFI Activities	Kleen Sites Geoservices, Inc.	DEC-2004

## IRP Previous Studies

2005

Title	Author	Date
SWMU 52: RTCs on the SAR.	ARCADIS	JAN-2005
SWMUs 7-9: RTCs on the Phase I RFI Report	Arcadis	JAN-2005
SWMU 10: RTCs on the Phase II RFI Report	Arcadis	JAN-2005
SWMU 48: Phase II RFI WP	Arcadis	JAN-2005
SWMU 21: Consolidation/Investigation WP	Arcadis	JAN-2005
SWMU 21: RTCs to the Phase II RFI Report	Arcadis	JAN-2005
SWMU 6: Revised Phase II RFI Report & RTCs	Arcadis	JAN-2005
SWMU 14 & AOC B: IM Progress Report/WP Addendum	Arcadis	JAN-2005
SWMU 3: Phase II RFI Report.	Arcadis	FEB-2005
SWMU 7-10: Historical Analytical Data Package	Arcadis	MAR-2005
SWMU 1: Phase II RFI Report	Arcadis	MAR-2005
SWMU Assessment Report (JSPOI)	EEI	MAR-2005
SWMUs 1 & 2: IM WP (RTCs & Revision Pages)	Arcadis	APR-2005
SWMU 5: Final CMS Report/CMI WP	ARCADIS	MAY-2005
SWMU 21: Soil Sampling plan for well near (SAR AOC K)	EEI/GNR	MAY-2005
SWMU 38: CS Addendum Report	CESAS	MAY-2005
SWMU 52: CS WP	Arcadis	MAY-2005
SWMU 21: IM WP	Arcadis	MAY-2005
SWMU 7, 8, 9, 10: RFI Report	Arcadis	JUN-2005
SWMU 47: IM Summary and WP Addendum	Arcadis	JUL-2005
SWMU 7-10: RFI Report	Arcadis	AUG-2005
SWMU 21: Addendum to RFI Phase II Report Version 3	Arcadis	SEP-2005
SWMU 6: RTCs to RFI Phase II Report Version 3	Arcadis	OCT-2005
SWMU 7-10: Phase II RFI Replacement Pages	Arcadis	OCT-2005
SWMU 52: Draft CS Report	Arcadis	OCT-2005
SWMU 47: IM Summary and WP Addendum	Arcadis	NOV-2005
SWMU 1 & 2: IM Completion Report	Arcadis	NOV-2005
SWMU 7-10: Phase II RFI Report Revision 3	Arcadis	NOV-2005

2006

SWMU 14: IM Completion Report	ARCADIS	FEB-2006
RCRA Corrective Action Permit Modification Package	Env.Mgt. Branch, ENRD, Fort Jackson	MAR-2006
SWMU 52: Revised Supplemental CS WP&WellPermit	ARCADIS	MAR-2006

## IRP Previous Studies

2006

Title	Author	Date
Draft EA for New National VA Cemetery	URS	MAR-2006
SWMU 23: Addendum 1 to Phase II RFI Report	Ecology & Environment, Inc.	MAR-2006
Supplemental RFI Investigation WP SWMU 49	Corps of Engineering, Savannah District	MAR-2006
SWMU1 Phase II RFI WP Addendum for Well Installation	ARCADIS	APR-2006
SWMU 48 Phase II RFI Report	Ecology & Environment, Inc.	APR-2006
SWMU 21 Consolidation/Investigation Report	ARCADIS	MAY-2006
SWMU 47: IM Summary and WP Addendum Rev 2	ARCADIS	MAY-2006
SWMU 21 RTCs Phase II RFI Report	Ecology & Environment, Inc.	JUN-2006
SWMU 6 & 21: IM WP	ARCADIS	JUN-2006
SWMU 12 & 23: CMS WP	Corps of Engineering, Savannah District	JUN-2006
AOC B Soil Removal WP	ARCADIS	JUN-2006
AOC Q RCRA AR	CTSI	JUN-2006
SWMU 5 CMI WP	ARCADIS	JUN-2006
SWMU 49 Revised Supplemental RFI WP	Corps of Engineering, Savannah District	JUL-2006
SWMU 52: Investigation Summary	ARCADIS	JUL-2006
Community Relations Management Plan	EA Engineering	JUL-2006
SWMU 14 CMS WP	ARCADIS	JUL-2006
SWMU 7-10 Closeout of Consent Order	ARCADIS	JUL-2006
MMRP Final SI Report	Malcolm Pirney	JUL-2006
SWMU 6 & 21: IM WP Revision 1	ARCADIS	SEP-2006
SWMU1 & 2 IM Completion Report Rev 1	ARCADIS	SEP-2006
SWMU 21 Consolidation/Investigation Completion Report	ARCADIS	SEP-2006
SWMU 49 Monitoring Well Request	Corps of Engineering, Savannah District	SEP-2006
SWMU 5 CMI WP Revision 1	ARCADIS	OCT-2006
SWMU 52: Revised Investigation Summary	ARCADIS	OCT-2006
SWMU 2 Confirmation Soil Sampling WP	ARCADIS	NOV-2006
SWMU 2 Revised RFI Report	ARCADIS	NOV-2006
AOC R RCRA AR	CTSI	DEC-2006
SWMU 48 Revised Phase II RFI Report & RTCs	Ecology & Environment, Inc.	DEC-2006
SWMU 49 Revised Supplemental RFI WP & RTCs	Corps of Engineering, Savannah District	DEC-2006
Draft EBS for VA Cemetery	URS	DEC-2006

2007

## IRP Previous Studies

2007

Title	Author	Date
SWMU 3 IM WP	ARCADIS	JAN-2007
SWMU 14/AOC B Revised IM Completion Report	ARCADIS	JAN-2007
AOC K Revised CS WP & RTCs	CTSI	FEB-2007
AOC Q Revised RCRA AR & RTCs	CTSI	FEB-2007
UST 6 CAP Addendum & UIC Permit Application	ARCADIS	FEB-2007
UST 8 CAP Addendum & UIC Permit Application	ARCADIS	FEB-2007
Final EA for VA Cemetery	URS	FEB-2007
SWMU 5: Construction Completion Report	ARCADIS	MAR-2007
SWMU 21 IM Completion/CMS Report	ARCADIS	MAR-2007
SWMU 5: CMI Progress Report	ARCADIS	MAR-2007
SWMU 48: Abandonment of Floor Drains	ARCADIS	MAR-2007
SWMU 3: Area of Contamination Addition to IM WP	ARCADIS	MAR-2007
SWMU 6: IM Completion/CMS Report	ARCADIS	MAR-2007
SWMU 48: Revised Final Phase II RFI Rev Pages and RTCs	ARCADIS	MAR-2007
SWMU 1: CMS WP	ARCADIS	MAR-2007
SWMU 2: Revised RFI Report and RTCs	ARCADIS	APR-2007
SWMU 6: Revised IM Completion/CMS Report with RTCs	ARCADIS	JUN-2007
SWMU 21: Revised IM Completion/CMS Report with RTCs	ARCADIS	JUN-2007
SWMU 2: Interim Measures Confirmation Soil Sampling Results	ARCADIS	JUN-2007
Reporting planned changes letter for AOC D	Fort Jackson	JUL-2007
SWMU 14: GW Sampling Plan	ARCADIS	JUL-2007
SWMU 14: CMS WP	ARCADIS	JUL-2007
Fwd Operating Base Planned Public Drinking Well	ARCADIS	SEP-2007
GW Sampling Plan Response to DHEC Comments	ARCADIS	SEP-2007
SWMU 3 IM Completion Report	ARCADIS	OCT-2007
SWMU 2 CMS Report	ARCADIS	NOV-2007
SWMU 47 Phase II RFI, RTCs and IM Completion Report	ARCADIS	NOV-2007
SWMU 48 CMS Work Plan	ARCADIS	NOV-2007
SWMU 1 CMS WP RTCs	ARCADIS	DEC-2007
AOC B CMS Report	ARCADIS	DEC-2007
SWMU 1: CMS WP RTCs	ARCADIS	DEC-2007

2008

## IRP Previous Studies

2008

Title	Author	Date
SWMU 14: CMS and Investigation WP	ARCADIS	JAN-2008
SWMU 3: RTCs for IM Completion Report	ARCADIS	JAN-2008
Area Adjacent to SWMU 3: Test Pit Investigation WP	ARCADIS	JAN-2008
SWMU 49: Draft Supplemental RFI Report	Corps of Engineering, Savannah District	JAN-2008
SWMU 44, Semiannual Progress Report - Nov 2007 Event	Kleen Sites Geoservices	FEB-2008
SWMU 2: Revised CMS Report + RTCs	Arcadis	FEB-2008
SWMU 47: Revised Phase II RFI RTCs and IM Completion Report	ARCADIS	FEB-2008
SWMU 14: Revised IM Completion Report + RTCs	Arcadis	MAR-2008
SWMU 48: Revised CMS WP & Ph.2 RFI Report	Arcadis	APR-2008
SWMU 48: Cement Filling of Former Floor Drains	Arcadis	APR-2008
AOC Q: Revised RTCs and CS WP	CTSI	MAY-2008
SWMU 3: CMS Report	Arcadis	MAY-2008
UST 6: PermeOXPlus CAP Perf. Monitoring Rpt	Arcadis	MAY-2008
AOC K: Revised CS WP + RTCs	Arcadis	JUN-2008
SWMU 48: CMS Report	Arcadis	JUN-2008
SWMU 14: CMS Report	Arcadis	JUL-2008
AOC B: RTCs+IM Completion Report and CMS Report	Arcadis	JUL-2008
UST 8: GW Monitoring Report	Arcadis	JUL-2008
SWMU 44: Semiannual Progress Report, June 2008 Event	KSG	SEP-2008
SWMU 48: Revised CMS Report and Phase 2 RFI RTCs	Arcadis	SEP-2008
SWMU 50: Revised CMS Report + RTCs	KSG	SEP-2008
SWMU 1: Revised CMS Report + RTCs	Arcadis	SEP-2008
SWMU 3: Revised CMS Completion Report + RTCs	Arcadis	SEP-2008
SWMU 14: Revised CMS Completion Report + RTCs	Arcadis	SEP-2008
UST 6: Revised PermeOx Plus CAP Performance Monitoring Rpt.	Arcadis	NOV-2008
SWMU 5: Revised CMI Progress Report + RTCs	Arcadis	DEC-2008
UST 1: Long Term Monitoring Report	Arcadis	DEC-2008
SWMU 5: Revised CMI Progress Report + RTCs	Arcadis	DEC-2008
UST 4: Long Term Monitoring Report	Arcadis	DEC-2008

2009

HW Storage Building Closure Request	Environmental Mgt. Branch, Env. Division, Ft. Jackson	JAN-2009
Draft SOB for AOC B	Arcadis	JAN-2009

## IRP Previous Studies

2009

Title	Author	Date
Draft SOB for SWMU 47	Arcadis	JAN-2009
Draft SOB for SWMU 3	Arcadis	JAN-2009
Draft SOB for SWMU 48	Arcadis	JAN-2009
SWMU 5: CMI Progress Report	Arcadis	JAN-2009
SWMU 3: IM WP for Surficial Metal Removal	Arcadis	JAN-2009
Reporting Plan Change Related to AOC D and AOC E - Child Development Center (CDC) Construction Notification	L.Estaba,ASIS, EMB,Env.Div.,Ft. Jackson, SC	FEB-2009
SWMU 3 MW Installation Issues Report	Arcadis	MAR-2009
ORAP Well Installation Request	Malcolm Pirnie	MAR-2009
RTCs for Revised SI Report - Military Munitions Response Program	Malcolm Pirnie	APR-2009
ORAP - Well Installation Request	Malcolm Pirnie	MAY-2009
Reporting Plan Change for AOC J	L.Estaba, EMB, Env. Div., Ft. Jackson	MAY-2009
SWMU 14 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
SWMU 1 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
SWMU 14 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
SWMU 1 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
SWMU 2, 3, 6, and 21 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
SWMU 48 Corrective Measures Implementation Work Plan	Arcadis	JUN-2009
Hazardous Waste Storage Building Closure Extension Request	Env. Mgt Branch, Env. Division, Ft. Jackson, SC	JUL-2009
Compilation of Water Well Records	L.Estaba, ASIS, EMB, Env. Div., Ft. Jackson, SC	JUL-2009
SWMU 1 Letter of Concurrence with Additional Comments	Solid Waste Groundwater Section, SCDHEC	SEP-2009
AOC K Monitoring Wells Issue Letter	SCDHEC	SEP-2009
AOC Q - Confirmatory Sampling Report	CTSI	SEP-2009
AOC K - Confirmatory Sampling Report	CTSI	SEP-2009
SWMU 18 and 19 Reporting Plan Change Request	EMB, Env.Div., Ft. Jackson	SEP-2009
AOC A Reporting Plan Change Request	Env. Mgt. Branch, Environmental Division, Ft. Jackson	SEP-2009
Hazardous Waste Storage Building Closure Report	Davis and Floyd	OCT-2009
SWMU 2, 3, 6, and 21 Corrective Measures Implementation Work Plan RTCs	Arcadis	OCT-2009
AOC E Reporting Plan Change Letter	L.Estaba, ASIS, EMB, Env.Div., Ft. Jackson	OCT-2009
Well Record Forms (1903's) Operational Range	Malcolm Pirnie	OCT-2009



## IRP Previous Studies

2009

Title	Author	Date
Assessment Report		
SWMU 1 RTCs to Solid Waste GW Section Comments	Arcadis and EMB, Env. Div., Ft. Jackson, SC	NOV-2009
SWMU 14 CMI WP RTCs	Arcadis	NOV-2009
MW3-14 CS WP Letter	L.Estaba, ASIS, EMB, Env.Div., Ft. Jackson	DEC-2009

2010

Final Permit Decision Letter	SCDHEC	FEB-2010
SWMU 14 CMI WP RTCs Rev 2	Arcadis	FEB-2010
SWMU 48 CMI WP RTCs Rev 1	Arcadis	FEB-2010
SWMU 3 Surficial Debris Disturbance Letter	Arcadis	FEB-2010
Final Permit Decision Letter	SCDHEC	FEB-2010
Effective date of RCRA Permit Re-Issue (Renewal)	SCDHEC	FEB-2010
SWMU 14 CMI WP RTCs Rev 2	ARCADIS	FEB-2010
SWMU 3 Surficial Debris Disturbance Letter	ARCADIS	FEB-2010
SWMU 48 CMI WP RTCs Rev 1	ARCADIS	FEB-2010
SWMU 2, 3, 6, 21 - Revised RTCs CMI WP	ARCADIS	MAR-2010
SWMU 23 2009 GW Sampling Report	CESAS	MAR-2010
SWMU 3 MW Installation Issues	ARCADIS	MAR-2010
SWMU 50 Revision Pages and RTCs for CMI WP	KSG	MAR-2010
SWMU 50 GW Monitoring Rpt.	AMEC	MAR-2010
AOC K CS - RTCs	CTSI	APR-2010
SWMU 23 2008 GW Sampling Report	CESAS	APR-2010
SWMU 49 CMS Report	ARCADIS	APR-2010
MMRP RI Work Plan (AOC E, F, G, HI, J)	CH2MHill - PBA	JUN-2010
SWMU 1 GW Quality Assessment Plan	CESAS	JUN-2010
SWMU 49 CMS RTCs	ARCADIS	JUN-2010
SWMU 5 - CMI Progress Report	ARCADIS	JUN-2010
SWMU 50 CMI WP - REC/LUC Language Rev.	AMEC	JUN-2010
VA CEM AOC S-VA Cemetery Letter of Transfer-LOT	VA HQ	JUL-2010
AOC K - RTCs and revised Document	Corps, CE-SAS	JUL-2010
MW3-14 WP	KSG	JUL-2010
SWMU 48 CMI WP RTCs Rev 2	ARCADIS	JUL-2010
SWMU 49 CMS RTCs	ARCADIS	AUG-2010
SWMU 2, 3, 6, 21 - RTCs on REC language for CMI WP	ARCADIS	SEP-2010

## IRP Previous Studies

### 2010

Title	Author	Date
SWMU 49 CMS RTCs (additional)	ARCADIS	SEP-2010
UST 1699 - Site Assessment Work Plan	CH2MHILL	SEP-2010
MMRP RI Work Plan RTCs unofficial highlighted copy	CH2MHill	OCT-2010
AOC Q- Revised CS Report and RTCs	CE-SAS	OCT-2010
SWMU 23 July 2010 GW Sampling Report	CESAS	OCT-2010
SWMU 50 - 2010 Annual Report	AMEC	OCT-2010
SWMU 1 - Fort Jackson Landfill #3 Annual Rpt .	CESAS	NOV-2010
UST 1699 AOC T - Site Assessment Work Plan and RTCs	CH2MHILL	DEC-2010
SWMU 1 CMI Progress Report	ARCADIS	DEC-2010
SWMU 49 CMS Rpt. Rev 2	ARCADIS	DEC-2010
SWMU 50 CMI Work Plan Revision 1	AMEC	DEC-2010

### 2011

SWMU 5 - CMI Progress Report, Replacement Pages	ARCADIS	JAN-2011
SWMU 50 July 2010 CMI Progress Report	AMEC	JAN-2011
RCRA Permit MOD	Fort Jackson and SCDHEC	APR-2011
SWMU 48 CMI Progress Report - 2010	KSG	JUN-2011
SWMU 1 Temp Well and Surface Water Results - July 2011	CESAS	JUL-2011
SWMU 14 CMI Progress Report	Arcadis	JUL-2011
AOC K Revised CS Report	CESAS	JUL-2011
AOC Q CSR - Rev #2	CESAS	JUL-2011
HW Storage Building Notification - June 2011	CESAS	JUL-2011
Hazardous Waste Storage Bldg Monthly Report - July 2011	CESAS	JUL-2011
SWMU 12 Tree Thinning Reporting Planned Changes	Lahiri Estaba, PB & A	AUG-2011
Hazardous Waste Storage Bldg Monthly Report - August 2011	CESAS	AUG-2011
Assessment Report (AR) Rev 2 Fmr Motorpool Oil/Water Separator Site behind Recycling - SWMU 53	KSG	SEP-2011
SWMU 1 Temp Well and Surface Water Results - July 2011 - RTCs and MW Application	CESAS	SEP-2011
SWMU 49 CMI Completion Report - Soil Only	Arcadis	SEP-2011
Hazardous Waste Storage Bldg Monthly Report - September 2011	CESAS	SEP-2011
Final WP SWMU 1/Landfill 3 Depression Repair	North Wind	OCT-2011
SWMU 23 Annual Groundwater Monitoring Report	CESAS	OCT-2011
SWMU 23 Annual Groundwater Monitoring Report	CESAS	OCT-2011

## IRP Previous Studies

### 2011

Title	Author	Date
SWMU 50 CMI Progress Report	AMEC	OCT-2011
RTCs for SWMU 2	Lahiri Estaba, EEI	OCT-2011
SWMU 1 Final Annual CMI Progress Report	Arcadis	NOV-2011
Hazardous Waste Storage Bldg Monthly Report - October 2011	CESAS	NOV-2011
Hazardous Waste Storage Bldg Demolition Work Plan - November 2011	CESAS	NOV-2011
UST System Closure Report Document - 6 sites - November 2011	J2	NOV-2011

### 2012

Former FTJA Property, Removal/Disposal of OWS-Disclosure Ltr.	CESAS	JAN-2012
2011 - SWMUs 2, 3, 6 and 21 CMIP Rpt.	Arcadis	FEB-2012
Reporting Planned Changes: SWMU 1	Lahiri Estaba/Fort Jackson	FEB-2012
2011 - SWMU 48 CMIP Report	Arcadis	FEB-2012
RTCs Former FTJA Property OWS Removal Rpt,	North Wind	MAR-2012
UST #6 - Draft Investigation Rpt.	Arcadis	MAR-2012
Sampling Plan - GW and Soil Investigation, Parcel 6 OWS	North Wind	APR-2012
AR (Rev. 03), Former Motorpool OWS Site behind Current Recycling Center	Kleen Sites	MAY-2012
Parcel 6 OWS, GW & Surface Soil Sampling Report	North Wind	MAY-2012
Focused CMS Report, Wonson and Inchon OB/OD Grounds	Lahiri Estaba/FTJA	JUL-2012
SWMU 23 CMS Report	Lahiri Estaba/FTJA	AUG-2012
2012 CMIP Report, SMWU 1	Arcadis	NOV-2012
CS Report, AOC Q (MW6-10)	CESAS	NOV-2012
SWMU 48 CMIP Report - 2012	Arcadis	NOV-2012

**FORT JACKSON**  
**Installation Restoration Program**  
**Site Descriptions**

**Site ID: FTJA-01**  
**Site Name: Active Sanitary Landfill**  
**Alias: SWMU 1**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Metals, Pesticides, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199308.....	200809
IRA.....	200502.....	200511
CMI(C).....	200809.....	200812
LTM.....	200812.....	204309

**RIP Date:** N/A

**RC Date:** 200812

## SITE DESCRIPTION

The PBC site FTJA-01 is located north of Semmes Road at the end of Ivy Road. FTJA-01 is a trench and fill LF which operated from 1974 to 1988, under SCDHEC Permit No. DPW-098. During operation the permit was amended to expand the LF as necessary to maintain new fill area. The last 20-acre section of the LF was closed in April 1994 and regulated by the SCDHEC solid waste (SW) management regulations. It is monitored in accordance with the 30-year post-closure care and monitoring plan approved by SCDHEC. The IRP funds restoration for only the 50-acre portion that did not receive waste after 1988. The following information pertains to the 50 IRP acres.

Three groundwater monitoring wells were installed in June 1980, and were sampled regularly for two years. Based on elevated levels of barium and lead detected between 1980 and 1982, an RFI was required by FTJA's RCRA Part B permit. From 1997 to 1998, five monitoring wells were installed as part of the initial RFI. As part of the RCRA closure of the LF in 1995, five more wells were installed to RCRA standards and the original three wells were abandoned/replaced. A Phase I RFI was completed in August 1999. Investigation results indicate soil and groundwater impact, and additional work was completed to determine the nature and extent of contamination. Methane off-gassing is being monitored semiannually. A draft Phase II RFI was implemented. The Phase II RFI report was finalized and submitted in FY05. Phase II RFI results do not indicate any immediate impact to human health or the environment. The Phase II RFI the report was conditionally approved in FY05. The conditions of the approval were met in the CMS. In addition, an IM was performed in FY05 that included the placement of additional soil cover in deficient areas, grading and seeding of the former mulch site, construction of storm water drainage structures, and removal of surface waste and debris. A CMS WP, submitted in FY07. SCDHEC issued three sets of comment iterations.

The CMS was approved and the RCRA permit was modified in April 2009. The CMI WP was submitted in June 2009. In FY10, SDHEC comments required additional revisions. The approved language for LUCs involved with the Record of Environmental Consideration (REC) process was crafted/approved over the following months. In addition, the post-closure plan portion of this site, regulated by a different set of regulators at the SCDHEC (RCRA Subtitle D - SW), have imposed further groundwater assessment work triggered by new much lower USEPA Region 9 RSL levels on 1,2 [1, 2 dichloroethane (DCA)]. Also, a small area of liner subsidence was discovered during a site walkover (50 acres)/inspection, etc. Estimates for liner repairs were gathered by the Corps. More recent SW requirements arose to repair the liner, and assess GW at the SW (20-acre portion). Several meetings were held since FY10, to broach responses to the SCDHEC (i.e., liner repairs, groundwater assessment, dual slightly different reporting, Subtitle D post-closure plan vs. RCRA permit requirements, etc.). More meetings followed, internally and with the SCDHEC. FTJA is closer to consolidation of previously separate LTM reporting requirements for SW and RCRA C sections at the SCDHEC, but more remains to coordinate/ consolidate. ARCADIS performs the FY13 spring sampling in April and the Corps in-house technicians will perform the fall semiannual groundwater and methane monitoring into the out-years (according to FTJA). The repairs were made to the liner in 2012 to SCDHEC's satisfaction. The trichloroethane (TCA) assessment was executed and new wells were installed. Arcadis has one more CMIP Report and LTM will continue under someone else for FY14.

**Site ID: FTJA-01**  
**Site Name: Active Sanitary Landfill**  
**Alias: SWMU 1**

### **CLEANUP/EXIT STRATEGY**

The final remedy includes cover maintenance and inspection, groundwater and methane monitoring, five-year reviews and annual reports. The LUCs will be implemented to mitigate potential impacts to human health and the environment.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-02**  
**Site Name: CLOSED SANITARY LANDFILL 1**  
**Alias: SWMU 2**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Metals, Pesticides, Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Sediment, Soil, Surface Water

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199308.....	200809
IRA.....	200502.....	200511
CMI(C).....	200809.....	200812
LTM.....	200812.....	204309

**RIP Date:** N/A

**RC Date:** 200812

## SITE DESCRIPTION

The PBC site FTJA-02 is a closed, 15-acre municipal LF located southwest of Tank Hill on the southeast side of Lee Road. This site served as FTJA's primary LF from 1941 to 1951. Refuse was burned and buried in trenches at the site. Types of waste disposed of probably included domestic wastes, POL wastes, water and wastewater treatment plant sludges, and general refuse. The US Army Reserve Center building is now located upgradient of the closed LF, and the Palmetto Lodge, a lodging facility, is located downgradient from the site, surrounded in the rear by the toe of the closed LF.

The Phase I RFI was completed in 1999. Results indicated that soil, sediment, and groundwater were impacted. Base housing is located adjacent to the southeastern edge of the LF. The SCDHEC requires LUCs due to potential for human exposure.

The Phase II RFI WP was submitted during FY01 and approved by SCDHEC on March 3, 2003. The WP was implemented and a Phase II RFI report was submitted in FY04. Results of the Phase II RFI do not indicate any immediate impact to human health or the environment. Based upon comments from the SCDHEC, a revised Phase II RFI report was submitted in FY06 and was conditionally approved in May 2007.

In addition, an IM (interim measures or IRA) was performed in FY05 that included the placement of additional soil cover in deficient areas, construction of storm water drainage structures, removal of surface waste and debris. The IM completion report was conditionally approved in October 2007. The CMS report was submitted in November 2007. Responses to SCDHEC comments and revision pages were submitted. Additional comments were issued in January 2008. Additional comment review iterations continued, until the CMS was approved. The RCRA permit was modified in April 2009 to reflect this. The CMI WP was submitted in June 2009. The CMI WP was finalized in FY11. A MILCON project expanded the existing parking lot further onto cover/fill, after partnering with Corps, contractors and SCDHEC. Initial concerns were addressed (breaching soil cover + erosion control, etc.). Final product worked out well, actually enhancing the cover and with more erosion protection. The LTM continues under the PBC through FY13. Arcadis has one more annual CMIP Report to submit (2013). The LTM needs to be awarded to another firm, to include LTM for this oldest LF at FTJA, and the rest of the LFs and other IR sites that require monitoring.

## CLEANUP/EXIT STRATEGY

The final remedy includes cover maintenance and inspection, groundwater monitoring, five-year reviews, and periodic reports. The LUCs will be implemented to mitigate potential impacts to human health and the environment.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-03**

**Site Name: CLOSED SANITARY LANDFILL 2, SWMU 3**

**Alias: SWMU 3**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Metals, Pesticides, Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199308.....	200809
IRA.....	200602.....	200709
CMI(C).....	200709.....	200809
LTM.....	200810.....	204309

**RIP Date:** N/A

**RC Date:** 200809

## SITE DESCRIPTION

The PBC site FTJA-03 is a closed approximately 100-acre LF located between Washington and Ewell Roads, east of the DRMO complex. The site was used from 1951 to 1974. Open burning was conducted in pits behind the DRMO facility for the first 10 years. The burned waste and unburned refuse were buried in trenches. Types of waste disposed of probably included domestic wastes, POL wastes, water and wastewater treatment plant sludges, and general refuse.

Phase I RFI was completed August 1999. Results indicate soil and groundwater impact, and additional work was completed to substantiate and determine the extent. Approximately one-half of the DRMO facility is located on the LF. Methane off-gassing is a concern.

The Phase II RFI WP was submitted during FY01 and was approved by the SCDHEC on March 3, 2003. The WP was implemented and the Phase II RFI report was submitted in FY05. The revised Phase II RFI report was conditionally approved in FY05. Conditions to the Phase II RFI will be met in the CMS report. To address the SCDHEC concerns regarding the groundwater monitoring network, three additional monitoring wells were installed and all wells were sampled in FY05. An IM was completed in FY07 that included grading, installation of two feet (ft) of soil cover and erosion control features. An IM report was submitted in FY07 and approved. Test pits were conducted to refine LF acreage on the west side. A CMS was approved in September 2008. Surface debris was removed in February 2009. The RCRA permit was modified in April 2009. The CMI WP was finalized in FY11.

In the fall of 2010 the area at the edge of the LF boundary (MW3-14) was evaluated for potential chlorinated solvent groundwater contamination from the outside of the LF. A geoprobe groundwater sampling event was performed by Ft. Jackson independent of the PBC. A four-hole assessment found no detections from outside the landfill. ARCADIS then resampled MW3-14 during the 2011 LTM event. They found no chlorinated VOC detections either. In mid-2011, ARCADIS also installed five additional wells on a 10 acre area to the northwest of the landfill. The added acreage makes FTJA-03 a 100-AC site.

Arcadis has one more year of LTM (CMIP), 2013. Someone else needs to continue the effort at this sanitary landfill and the other IR sites in LTM.

## CLEANUP/EXIT STRATEGY

The final remedy includes cover maintenance and inspection, groundwater monitoring, five-year reviews and periodic reports. The LUCs will be implemented to mitigate potential impacts to human health and the environment.

This site is included in the PBC that eclipses Sept. 10, 2013.



**Site ID: FTJA-05**

**Site Name: Inactive WETSITE Landfill (SWMU 5)**

**Alias: SWMU 5**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** MEDIUM

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	198911.....	199001
CS.....	199109.....	200108
LTM.....	200912.....	204309

**RIP Date:** N/A

**RC Date:** 200108

## SITE DESCRIPTION

The PBC site FTJA-05 is a closed construction debris LF located at the southeastern corner of FTJA, in the SCARNG area. This site operated from the early-1940s to the mid-1950s, and it was a trench and fill type LF approximately two acres in size. The site is completely vegetated by native grasses with no signs of erosion. A recreational pond, constructed in 1984, is located 150 yards downslope of the LF. The CS was required by the RCRA Part B permit and was completed in 1997. Results from the 1997 CS report required additional CS work, which was completed in FY02. No exceedances were detected.

This site is located on FTJA property currently leased to the National Guard. If monitoring is required beyond the PBC period of performance, the site will be administratively managed and funded by the National Guard Bureau.

A soil cover assessment indicated that the existing cover is adequate. A cover assessment was completed and the results were included in the CMS report. Soil cover met or exceeded the two-foot standard. The CMS report was approved by the SCDHEC in FY05 and the RCRA permit modification occurred in FY06. A CMI WP was approved in FY07. The site is in LTM (M for management). LUCs will be inspected/reported yearly. One five-year review was prepared under the PBC. RC was reached after the final round of LTM groundwater monitoring was completed in FY09. The CMI WP required LUC language revisions (complete). The CMI WP was amended and approved by SCDHEC. The LTM of the soil cover and LUCs continue for the site, using SCDHEC's inspection check list. FY13 is Arcadis' last year. LTM needs to be reawarded for FY14 or stakeholders asked if a 'mod' can be awarded to Arcadis PBC.

## CLEANUP/EXIT STRATEGY

The selected final remedy for this site includes LUCs, five-year reviews, signs and periodic cover inspections and reporting. Groundwater monitoring goals have been achieved.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-06**  
**Site Name: INACTIVE TANK HILL LANDFILL**  
**Alias: SWMU 6**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** MEDIUM

Contaminants of Concern: Metals, Pesticides, Semi-volatiles (SVOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199308.....	200710
IRA.....	200603.....	200612
CMI(C).....	200109.....	200912
LTM.....	200912.....	204309

**RIP Date:** N/A

**RC Date:** 200912

## SITE DESCRIPTION

The PBC site FTJA-06 is a former construction debris LF covering approximately 14 acres. It is located at the corner of Hartsville Guard and Lee Roads, in the area known as "Tank Hill." This LF consists of steep slopes and gullies and has two access points. Building contractors used this site to dispose of construction debris. The Phase I RFI was completed in August 1998.

The Phase II RFI WP was submitted during FY01 and was approved by the SCDHEC on March 3, 2003. The WP was implemented and the Phase II RFI report submitted, reviewed, revised and finally approved in FY06. An IM WP was prepared and approved later in FY06, pursuing what is expected to be the crux of the final remedy (i.e., grading, two ft of soil cover and erosion control features). The IM was completed in early FY07. A CMS/IM completion report was approved in July 2007. Several RCRA Permit modifications have been completed to document phase completions and remedy selections. The PBC completes approximately five years of LTM in 2013, that included GW monitoring, LUC inspections/reports and one five-year review.

Annual sampling, LUC inspections and five-year reviews are anticipated to continue until SCDHEC says otherwise. This is provided no damage is sustained by the soil cover or a known release occurs.

The CMI WP was revised in FY11. FY13 is Arcadis' last year at FTJA. They made a case for discontinuing GW monitoring at this site and FTJA-21, but SCDHEC requires that LTM continue. It needs to be reawarded for FY14.

## CLEANUP/EXIT STRATEGY

The final remedy includes the IM work, cover maintenance and inspection, groundwater monitoring, five-year reviews, and periodic reports. The LUCs will be implemented to mitigate potential impacts to human health and the environment.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-13**

**Site Name: FORMER WEAPONS CLEANING AREA**

**Alias: SWMU 14**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Metals, Volatiles (VOC)

Media of Concern: Groundwater, Sediment, Soil, Surface Water

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199001.....	200609
IRA.....	200407.....	200608
CMI(C).....	200407.....	200609
CMI(O).....	200407.....	201709
LTM.....	201710.....	202309

**RIP Date:** 200609

**RC Date:** 201709

## SITE DESCRIPTION

This combined PBC site includes FTJA-13 and FTJA-36.

Site FTJA-13 consists of former Building 1605 and the surrounding area, located at the intersection of Lee and Washington Roads. Weapons cleaning operations were conducted from the early-1940s to 1965. Building 1605 housed a large vat containing TCE and other vats containing sodium dichromate-rich solutions for weapons cleaning and blueing. Wastes were reportedly discharged into drains connected to a terra cotta drain field, which then discharged to ditches leading to Wildcat Creek. These vats were removed in 1991 along with Building 1605.

Site FTJA-36 consisted of a pair of 200,000-gallon aboveground storage tanks (ASTs) located near Central Energy Plant No. 3 at Washington Road and Lee Road. The site is located near the southern border of the installation. The tanks were used to store diesel fuel and were removed in FY02. Some underground piping remains in place.

Groundwater flows in two directions at this site, discharging to both branches of Wildcat Creek above the confluence. The site is located near the southern border of the installation, and the proximity to the base boundary poses a potential for off-post surface water contamination.

The Phase III RFI is complete. The Phase III RFI report was reviewed in FY02 and has been revised and approved.

Due to overlapping contaminant plumes, FTJA-13 and FTJA-36 constituted a single investigation. An IRA has been conducted at FTJA-36 to remove free-phase petroleum. The second IRA was conducted for the ASTs and the re-sampling of soils. A third and fourth IRA consisted of in-situ bioremediation to address groundwater at FTJA-13 (completed in FY06) and soil and source removal of LNAPL at FTJA-36 (completed in FY07). The IM completion/CMS report for FTJA-36 (AOC B) was approved in summer 2008. An NFA was received in August 2008. When injection wells were sampled and elevated chlorinated volatile organic compounds (CVOs) were detected. Then most monitoring wells were resampled in preparation for the CMS WP for FTJA-13. The CMS report was approved for LTM and LUCs with additional ERD as a contingency. The PBC will perform MNA monitoring under corrective measures implementation - operations [CMI(O)] for four years starting in FY10 - FY13.

Post-PBC, an additional four years under CMI(O) is anticipated, followed by five years of groundwater monitoring, the last year having four quarters of groundwater sampling under LTM to confirm the final remedy. Ten years of LUC inspections/reports and two five-year reviews are anticipated. The CMI WP was finalized in FY10.

The MNA is scheduled to run through FY17. This will be followed by one year of LTM.

FY13 is Arcadis' last year of CMI (O) monitoring, therefore, the monitoring for the second event in FY13 is being re-assigned (i.e., Arcadis PBC MOD? or new contract) and likely performed by CE-SAS while new contract coordinated, prepared and awarded.

**Site ID: FTJA-13**  
**Site Name: FORMER WEAPONS CLEANING AREA**  
**Alias: SWMU 14**

### **CLEANUP/EXIT STRATEGY**

The final remedial action (FRA) at FTJA-13 is in situ bioremediation, MNA and also includes GW monitoring, reporting and LUCs.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-21**  
**Site Name: INACTIVE RANGE 17 LANDFILL**  
**Alias: SWMU 21**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** MEDIUM

Contaminants of Concern: Metals, Pesticides

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199309.....	200609
IRA.....	200509.....	200609
CMI(C).....	200801.....	200809
LTM.....	200809.....	204309

**RIP Date:** N/A

**RC Date:** 200809

## SITE DESCRIPTION

The PBC site FTJA-21 is located near the intersection of Hartsville Guard and Old Hartsville Guard Roads. This construction debris LF is approximately 15 acres and was used to dispose inert debris from road construction and barracks demolition. The site became overgrown with low brush and early growth trees. Debris was trucked to the site and dumped on the surface and into borrow pits.

A characterization and consolidation WP was submitted and approved in FY05. The fieldwork was also conducted in FY05 to remove and consolidate the surface debris. Additional buried debris was also strategically excavated to reduce the LF size to five acres. Sampling has been completed at this site and indicates there is no groundwater contamination.

The boundaries of the LF have been revised since the Phase I RFI, after historical aerial photograph reviews and thorough site walkovers were performed by the Tier I partnering team. The Phase II RFI report was submitted to and reviewed by the SCDHEC. The report was revised and approved in FY06.

An IM WP was approved and completed in FY06 to apply a dermal cover to all remaining areas of buried debris. The IM was completed in early FY07, pursuing what is expected to be the crux of the final remedy (i.e., grading, two ft of soil cover and erosion control features). The CMS approved and remedy consists of LUCs, groundwater LTM and five-year reviews. Permit modification is pending.

The PBC will complete five years of LTM, including groundwater monitoring, LUC inspections/reports and one five-year review. The CMS was approved and the RCRA permit was modified in April 2009. The CMI WP was finalized in FY11.

GW sampling, and annual LUC inspections are the selected remedy, provided no damage is sustained by soil cover or a known release occurs.

Discontinuation of GW monitoring has been requested for this site, but SCDHEC will determine if LTM will continue after additional data is collected. FY13 is Arcadis' last year. Additional work requires another contract award (PBC).

## CLEANUP/EXIT STRATEGY

The final remedy includes the IM work, cover maintenance and inspection, groundwater monitoring, and periodic reports. The LUCs are being implemented to mitigate potential impacts to human health and the environment. Two five-year review reviews are planned.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-23**  
**Site Name: OLD REMAGEN IMPACT RANGE**  
**Alias: SWMU 23**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Explosives, Metals, Munitions constituents (MC)

Media of Concern: Groundwater, Sediment, Soil, Surface Water

Phases	Start	End
RFA.....	198911.....	199005
RFI/CMS.....	199308.....	200512
CMI(C).....	200206.....	200512
LTM.....	200809.....	204209

**RIP Date:** N/A

**RC Date:** 200512

## SITE DESCRIPTION

Site FTJA-23 is located northeast of Boyden Arbor Road near the northwestern border of the installation. The range is approximately 3.4 acres and was used prior to 1979 for hand grenade and later for rifle grenade training. The area is eroded and mostly barren. Delineated wetlands are approximately 500 ft downgradient of the range.

Initial sampling detected estimated concentrations (J qualified) of explosives, arsenic, chromium and lead in exceedance of groundwater regulatory standards. The Phase II RFI was approved with conditions to confirm and characterize the groundwater quality. An IM WP to install a soil cover and erosion control measures was reviewed by the SCDHEC; however, the IM was abandoned on the SCDHEC recommendation to do so only after the entire Old Remagen Range becomes nonoperational. The SCDHEC stated that the metals and explosive constituent exceedances will eventually require further investigation as to the extent of soil and groundwater impact. During the Phase II RFI addendum, groundwater was sampled for four quarters in FY05-FY06. The RFI Phase II addendum results confirmed the previously observed exceedances of RDX and metals. The SCDHEC stands by their decision to defer remedial measures, but requires continued annual groundwater monitoring. Corps of Engineers, South Atlantic Division, Savannah District (CESAS) in-house staff retained to perform monitoring.

## CLEANUP/EXIT STRATEGY

A focused CMS report documented access controls and LUCs currently in place and groundwater issues that resulted from the RFI II addendum results. Final groundwater delineation and RA have been deferred until the entire Old Remagen Impact Range is nonoperational or transferred. Until then, annual groundwater monitoring for metals and explosives will be performed (per the SCDHEC's recommendation).

**Site ID: FTJA-32**  
**Site Name: INACTIVE ACID PIT, BLDG 6586**  
**Alias: SWMU 48**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** MEDIUM

Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL), Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	198911.....	199001
RFI/CMS.....	199308.....	200809
LTM.....	200902.....	202309

**RIP Date:** N/A

**RC Date:** 200809

## SITE DESCRIPTION

The PBC site FTJA-32 is located within and adjacent to Building 6586, off Lee Road, north of Imboden Street. The battery room in Building 6586 formerly contained a floor drain, which was connected to an acid pit. Battery acid, which spilled during battery recharge operations, was neutralized. The neutralized solution was hosed down into the floor drain. The acid neutralization pit was operated from the late-1950s to approximately 1989. The IM was funded under the Army Operations and Maintenance Account (OMA) and implemented during late FY99. Removal activities consisted of removing an oil/water (O/W) separator, neutralized battery acid drainage pit, and approximately 800 cy of overburdened and contaminated soil. The extensive soil stockpile required resampling after the removal contractor submitted nonrepresentative composite samples. The approved soil stockpile sample report recommendation to dispose of soil as nonhazardous material was executed in FY00.

Piping and structures (sump) associated with the acid pit were removed during an initial IM and a supplemental IM. The supplemental IM fieldwork was completed and the report was submitted to the SCDHEC in FY04.

The Phase II RFI WP was approved in FY05. This plan included the installation of two monitoring wells and resampling of the existing wells. The Phase II RFI report was conditionally approved in January 2007. ARCADIS took over the site in FY07 under the PBC. They filled remaining floor drains with grout in accordance with the approved WP in March 2007. A CMS report was approved in September 2008. RCRA permit was modified in April 2009. The CMI WP was finalized in September 2010. SDHEC allowed LTM to begin in late 2008. LTM continues with Arcadis through FY13. Additional work will need to be re-assigned.

## CLEANUP/EXIT STRATEGY

The LTM requirements are limited to LUCs, five-year reviews and groundwater monitoring.

This site is included in the PBC that eclipses Sept. 10, 2013.

**Site ID: FTJA-34**

**Site Name: FORMER UST CONTAMINATION AREAS**

**Alias: USTs(ER,A)**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** HIGH

Contaminants of Concern: Semi-volatiles (SVOC), Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
ISC.....	199202.....	199203
INV.....	199309.....	199912
CAP.....	199912.....	200309
DES.....	200308.....	200512
IRA.....	200105.....	200212
IMP(C).....	200308.....	200709
IMP(O).....	200603.....	200809
LTM.....	200810.....	202312

**RIP Date:** 200709

**RC Date:** 200809

## SITE DESCRIPTION

Site FTJA-34 consists of 13 IRP eligible sites spread throughout the post. The tanks were taken out of service in 1984 and removed between 1991 and 1993. The tanks ranged in size from 500-gallon to 12,000-gallon capacity and contained diesel, fuel oil, or gasoline. A total of nine sites (of the original 13) had received NFA as of 2003. The UST sites 1, 4, 6 and 8 have approved corrective action plans (CAPs) that are in the sampling and analysis phase. Other UST sites not qualifying for Environmental Restoration, Army (ER,A) funds are being managed with OMA funds. All the UST sites are regulated by risk-based corrective action (RBCA) guidelines adapted by the SCDHEC in 1995 and revised in January 1998.

The RA has been implemented at all the sites. The selected remedy was MNA at UST Site 1. Levels were such that the SCDHEC approved conditional no further action (CNFA) in December 2008. Biox injections were used to enhance MNA at UST Site 4. Levels were such that the SCDHEC approved a NFA decision in December 2008. The UST Site 8 had pilot tests for soil vapor extraction (SVE), followed by attempted injections of oxygen releasing compound, but the subsurface soils were too tight for those technologies.

The UST Site 8 exhibited decreasing hydrocarbon levels and received a NFA decision from the SCDHEC since then. Levels were such that the SCDHEC approved CNFA in August 2008.

Soil removal and oxygen releasing compound treatment and 'phyto-remediation' were selected for UST Site 6. The approved CAP was implemented. Phyto-remediation has performed very well and Permeox worked well initially, but its effects were reevaluated. The LTM annual monitoring is underway. The UST Site 6 is the last remaining Defense Environmental Restoration Program (DERP) UST Site. Additional soil testing was conducted in the area of PMW3-R. This led to an amended CAP for further excavation. The CAP was approved by SCDHEC and implemented in 2012. In addition, calcium peroxide was added to the bottom of the pit for oxygen release to stimulate petroleum eating aerobic bacteria.

LTM annual monitoring will resume when the remedial action report is approved by SCDHEC. Meanwhile, Arcadis will conduct its final sampling in FY13. CESAS is likely to pick up monitoring for the interim event, while a new PBA is awarded to address this site and all the rest.

## CLEANUP/EXIT STRATEGY

In early FY09 MNA of UST Site 6 was started as the final remedy. After the MNA objective is achieved, LTM will include annual groundwater monitoring continuing after the PBC ends.

This site is included in the PBC that eclipses Sept. 10, 2013.



**Site ID: FTJA-39**  
**Site Name: INACTIVE WEAPONS POOL TANK**  
**Alias: SWMU 49**

## STATUS

**Regulatory Driver:** RCRA

**RRSE:** LOW

Contaminants of Concern: Metals, Semi-volatiles (SVOC),  
Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	199803.....	199805
CS.....	199805.....	199807
RFI/CMS.....	199808.....	200309
DES.....	200309.....	200509
IRA.....	200103.....	201109
CMI(C).....	200407.....	201109
CMI(O).....	200407.....	201609
LTM.....	201609.....	202309

**RIP Date:** 201109

**RC Date:** 201609

## SITE DESCRIPTION

Site FTJA-39 was discovered in FY98 during a monitoring well abandonment for a UST site that had achieved NFA. It is located behind the back of Building 3058, currently occupied by the 748th Ordnance Company (EOD). The tank consisted of a concrete vault used as a waste solvent holding tank for weapons cleaning activity at the former Weapons Pool Area. The Weapons Pool stored, cleaned, and repaired small arms issued to recruits in training. Weapons cleaning operations were conducted at FTJA-39 from 1972 until the mid-1980s. Subsequently, the Weapons Pool began using self-contained Safety Kleen solvent baths. The site lies on the post boundary adjacent to and upgradient of I-77. The FTJA sampled contents of the tank (primarily rainwater) and adjacent soils. A SWMU assessment report (SAR) was submitted in FY98. This led to an RFI.

Results of the Phase I RFI showed detectable levels of naphthalene, other PAHs and RCRA metals in groundwater and soils at concentrations exceeding applicable screening criteria.

In FY02 an IM was completed to remove the vault, the majority of the pipeline, and approximately 18 cy of soil. A Phase II RFI was conducted concurrently with the IM-removal action. The Phase II RFI report was approved in FY03. A MNA was proposed as a final remedy and scoped as such in the PBC. Additional sampling was requested by the SCDHEC to show MNA was appropriate. Four quarters of sampling were performed by the PBC contractor in FY04-05.

Results of quarterly sampling did not support MNA. Since the PBC had this site scoped as an MNA project, USACE was hired by FTJA/USAEC to assess the site further by collecting soil and groundwater samples and installing a new well. A Supplemental RFI report was submitted to the SCDHEC at that time. In situ treatment was recommended prior to re-initiating the remedy (MNA) under the current PBC scope.

The PBC was modified in 2008 to include these enhancements. Two additional years of CMI(O) prior to re-initiating sampling and reporting for MNA are required. The soil and groundwater testing was performed the summer of 2009. Additional wells were installed to fully delineate contamination. The CMS Report was conditionally approved in January 2011. A RCRA Permit modification was completed in April 2011. The CMI Work Plan was approved soon after. Fieldwork was completed by summer of 2011. Construction Completion Report was approved by SCDHEC in late 2011.

Arcadis' last year is FY13. Their last CMI Progress Reports will cover the first half of 2013 (their last sampling event in April). Additional GW monitoring is required to ensure that the site is restored by MNA. Additional LTM is required. USAEC seeks a PBC award for ongoing work. CESAS will likely perform the second half of 2013 monitoring.

## CLEANUP/EXIT STRATEGY

**Site ID: FTJA-39**  
**Site Name: INACTIVE WEAPONS POOL TANK**  
**Alias: SWMU 49**

The final remedy consists of excavation, in situ treatment, groundwater monitoring, and MNA. LUCs and five-year reviews are also being implemented.

This site is included in the PBC that eclipses Sept. 10, 2013.

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTJA-001	PBC FORT JACKSON PBC	201303	
FTJA-04	WETSITE LANDFILL	198905	Received Permit in October 1991 making site NFA
FTJA-07	FORMER HW STOR BUILDINGS 2640,2641,2642	200509	Clean closure received from SCDHEC Dec. 21, 2005
FTJA-08	FORMER PCB STG BLD 2668	200509	Clean closure received from SCDHEC in Dec. 21, 2005
FTJA-09	FORMER WASTE OIL TANKS	200108	SCDHEC Letter dated July 25, 2001
FTJA-10	INACTIVE WONSON OB/OD GROUND	200609	Any RA has been deferred until the range is nonoperational or transferred
FTJA-11	INACTIVE 48TH EOD OB/OD GROUND	199203	Clean closure received from SCDHEC in Aug. 9, 1999
FTJA-12	FORMER CARDBOARD RECYCLE STATION B-3580	198905	Received Permit in October 1991 making site NFA
FTJA-14	VETERINARY INCINERATOR	198905	Received Permit in October 1991 making site NFA
FTJA-15	WESTON LAKE SEWAGE TRT PLT	198905	Received Permit in October 1991 making site NFA
FTJA-16	FORMER SEWAGE TREATMENT PLANT	199908	NFA received from SCDHEC Aug. 19, 2004
FTJA-17	FORMER USED OIL BURNING BOILERS PLT 3	199005	Received Permit in October 1991 making site NFA
FTJA-18	Inactive INCHON OB/OD Ground-SWMU17	200303	Site within Impact Range Fan. RFI approved. Final remedy deferred until Range nonoperational or transferred
FTJA-19	FORMER TASC HW STORAGE AREA	199701	NFA received from SCDHEC July 1998
FTJA-20	Fmr PCB Sto.Area,Bldg 2569-SWMU 20	200307	NFA received from SCDHEC Aug. 18, 2003
FTJA-22	FORMER TASC WASTE SOLVENT CABINET	199701	NFA received from SCDHEC July 1998
FTJA-24	OLD ROCKET GRENADE RANGE	199701	NFA received from SCDHEC July 1998
FTJA-25	FORMER DRMO BATTERY STORAGE AREA	199701	NFA received from SCDHEC July 1998
FTJA-26	ENERGY PLANT #3 DRAINAGE AREA	200108	NFA received from SCDHEC July 25, 2001
FTJA-27	FORMER BLDG F2182 WASH PAD & O/W SEP	200108	NFA received from SCDHEC July 25, 2001
FTJA-28	BLDG 9428 WASH PAD & O/W SEPARATOR	200506	NFA received from SCDHEC June 8, 2005
FTJA-29	FORMER TANK 5453	199506	NFA received from SCDHEC July 1998
FTJA-30	FORMER ROADS & GROUNDS STORAGE AREA	200612	All fieldwork is complete at this site and no further work is planned. Finalized documents will be sent to SCDHEC for approval/NFA.
FTJA-31	FORMER SHED 1617 AREA	200108	NFA received from SCDHEC July 25, 2001
FTJA-33	FORMER BLDG 1611 WASH PAD& O/W SEPARATOR	200108	NFA received from SCDHEC July 25, 2001
FTJA-36	TANKS 1619 & 1700 - (AOC B)	200309	This site is being addressed with FTJA-13 under the PBC
FTJA-37	FORMER VARSOL UST	200309	NFA received from SCDHEC June 12, 2003
FTJA-38	SINGLE SOLDIERS HOUSING BARRACKS	200511	NFA received from SCDHEC Nov. 30, 2005

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTJA-40	TANK REPAIR SHOP	200610	NFA letter received from SCDHEC Oct. 31, 2006.

## IRP Schedule

**Date of IRP Inception:** 198708

### Past Phase Completion Milestones

#### 1989

SI (FTJA-15 - WESTON LAKE SEWAGE TRT PLT)  
 PA (FTJA-15 - WESTON LAKE SEWAGE TRT PLT)  
 RFA (FTJA-04 - WETSITE LANDFILL, FTJA-07 - FORMER HW STOR BUILDINGS 2640,2641,2642, FTJA-08 - FORMER PCB STG BLD 2668, FTJA-09 - FORMER WASTE OIL TANKS, FTJA-12 - FORMER CARDBOARD RECYCLE STATION B-3580, FTJA-14 - VETERINARY INCINERATOR, FTJA-16 - FORMER SEWAGE TREATMENT PLANT)

#### 1990

RFA (FTJA-001 - PBC FORT JACKSON PBC , FTJA-01 - Active Sanitary Landfill , FTJA-02 - CLOSED SANITARY LANDFILL 1, FTJA-03 - CLOSED SANITARY LANDFILL 2, SWMU 3, FTJA-05 - Inactive WETSITE Landfill (SWMU 5), FTJA-06 - INACTIVE TANK HILL LANDFILL, FTJA-10 - INACTIVE WONSON OB/OD GROUND, FTJA-11 - INACTIVE 48TH EOD OB/OD GROUND, FTJA-13 - FORMER WEAPONS CLEANING AREA, FTJA-17 - FORMER USED OIL BURNING BOILERS PLT 3, FTJA-18 - Inactive INCHON OB/OD Ground-SWMU17, FTJA-19 - FORMER TASC HW STORAGE AREA, FTJA-20 - Frmr PCB Sto.Area,Bldg 2569-SWMU 20, FTJA-21 - INACTIVE RANGE 17 LANDFILL, FTJA-22 - FORMER TASC WASTE SOLVENT CABINET, FTJA-23 - OLD REMAGEN IMPACT RANGE, FTJA-24 - OLD ROCKET GRENADE RANGE, FTJA-25 - FORMER DRMO BATTERY STORAGE AREA, FTJA-26 - ENERGY PLANT #3 DRAINAGE AREA, FTJA-27 - FORMER BLDG F2182 WASH PAD & O/W SEP, FTJA-30 - FORMER ROADS & GROUNDS STORAGE AREA, FTJA-31 - FORMER SHED 1617 AREA, FTJA-32 - INACTIVE ACID PIT, BLDG 6586, FTJA-33 - FORMER BLDG 1611 WASH PAD& O/W SEPARATOR, FTJA-36 - TANKS 1619 & 1700 - (AOC B), FTJA-37 - FORMER VARSOL UST)

#### 1991

RFA (FTJA-28 - BLDG 9428 WASH PAD & O/W SEPARATOR, FTJA-29 - FORMER TANK 5453)

#### 1992

CS (FTJA-11 - INACTIVE 48TH EOD OB/OD GROUND)  
 ISC (FTJA-34 - FORMER UST CONTAMINATION AREAS)

#### 1995

CS (FTJA-29 - FORMER TANK 5453)

#### 1997

CS (FTJA-08 - FORMER PCB STG BLD 2668, FTJA-19 - FORMER TASC HW STORAGE AREA, FTJA-22 - FORMER TASC WASTE SOLVENT CABINET, FTJA-24 - OLD ROCKET GRENADE RANGE, FTJA-25 - FORMER DRMO BATTERY STORAGE AREA)  
 ISC (FTJA-38 - SINGLE SOLDIERS HOUSING BARRACKS)

#### 1998

RFA (FTJA-39 - INACTIVE WEAPONS POOL TANK)  
 CS (FTJA-39 - INACTIVE WEAPONS POOL TANK)

#### 1999

CS (FTJA-07 - FORMER HW STOR BUILDINGS 2640,2641,2642, FTJA-16 - FORMER SEWAGE TREATMENT PLANT)

#### 2000

INV (FTJA-34 - FORMER UST CONTAMINATION AREAS)  
 CS (FTJA-27 - FORMER BLDG F2182 WASH PAD & O/W SEP)

#### 2001

CS (FTJA-05 - Inactive WETSITE Landfill (SWMU 5), FTJA-09 - FORMER WASTE OIL TANKS, FTJA-26 - ENERGY PLANT #3 DRAINAGE AREA, FTJA-31 - FORMER SHED 1617 AREA, FTJA-33 - FORMER BLDG 1611 WASH PAD& O/W SEPARATOR)

#### 2002

RFA (FTJA-40 - TANK REPAIR SHOP)

## 2003

CS	(FTJA-40 - TANK REPAIR SHOP)
IRA	(FTJA-28 - BLDG 9428 WASH PAD & O/W SEPARATOR, FTJA-34 - FORMER UST CONTAMINATION AREAS)
RFI/CMS	(FTJA-18 - Inactive INCHON OB/OD Ground-SWMU17, FTJA-20 - Frmr PCB Sto.Area,Bldg 2569-SWMU 20, FTJA-36 - TANKS 1619 & 1700 - (AOC B), FTJA-37 - FORMER VARSOL UST, FTJA-39 - INACTIVE WEAPONS POOL TANK)
CAP	(FTJA-34 - FORMER UST CONTAMINATION AREAS)
INV	(FTJA-38 - SINGLE SOLDIERS HOUSING BARRACKS)

## 2005

RFI/CMS	(FTJA-07 - FORMER HW STOR BUILDINGS 2640,2641,2642, FTJA-08 - FORMER PCB STG BLD 2668, FTJA-10 - INACTIVE WONSON OB/OD GROUND)
CS	(FTJA-28 - BLDG 9428 WASH PAD & O/W SEPARATOR)
DES	(FTJA-39 - INACTIVE WEAPONS POOL TANK)

## 2006

RFI/CMS	(FTJA-13 - FORMER WEAPONS CLEANING AREA, FTJA-21 - INACTIVE RANGE 17 LANDFILL, FTJA-23 - OLD REMAGEN IMPACT RANGE)
CMI(C)	(FTJA-13 - FORMER WEAPONS CLEANING AREA, FTJA-23 - OLD REMAGEN IMPACT RANGE)
IRA	(FTJA-01 - Active Sanitary Landfill , FTJA-02 - CLOSED SANITARY LANDFILL 1, FTJA-13 - FORMER WEAPONS CLEANING AREA, FTJA-21 - INACTIVE RANGE 17 LANDFILL)
DES	(FTJA-34 - FORMER UST CONTAMINATION AREAS)
LTM	(FTJA-10 - INACTIVE WONSON OB/OD GROUND)
CAP	(FTJA-38 - SINGLE SOLDIERS HOUSING BARRACKS)

## 2007

IMP(C)	(FTJA-34 - FORMER UST CONTAMINATION AREAS)
IRA	(FTJA-03 - CLOSED SANITARY LANDFILL 2, SWMU 3, FTJA-06 - INACTIVE TANK HILL LANDFILL, FTJA-30 - FORMER ROADS & GROUNDS STORAGE AREA)
CMI(C)	(FTJA-001 - PBC FORT JACKSON PBC )
RFI/CMS	(FTJA-30 - FORMER ROADS & GROUNDS STORAGE AREA, FTJA-40 - TANK REPAIR SHOP)

## 2008

CMI(O)	(FTJA-001 - PBC FORT JACKSON PBC )
RFI/CMS	(FTJA-01 - Active Sanitary Landfill , FTJA-02 - CLOSED SANITARY LANDFILL 1, FTJA-03 - CLOSED SANITARY LANDFILL 2, SWMU 3, FTJA-06 - INACTIVE TANK HILL LANDFILL, FTJA-32 - INACTIVE ACID PIT, BLDG 6586)
CMI(C)	(FTJA-03 - CLOSED SANITARY LANDFILL 2, SWMU 3, FTJA-21 - INACTIVE RANGE 17 LANDFILL)
IMP(O)	(FTJA-34 - FORMER UST CONTAMINATION AREAS)

## 2009

CMI(C)	(FTJA-01 - Active Sanitary Landfill , FTJA-02 - CLOSED SANITARY LANDFILL 1)
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## 2010

CMI(C)	(FTJA-06 - INACTIVE TANK HILL LANDFILL)
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## 2011

CMI(C)	(FTJA-39 - INACTIVE WEAPONS POOL TANK)
IRA	(FTJA-39 - INACTIVE WEAPONS POOL TANK)

## Projected Phase Completion Milestones

See attached schedule

## IRP Schedule

### Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
FTJA-001	PBC FORT JACKSON PBC	Fort Jackson PBC	20131230
FTJA-02	CLOSED SANITARY LANDFILL 1	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-12	FORMER CARDBOARD RECYCLE STATION B-3580	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-28	BLDG 9428 WASH PAD & O/W SEPARATOR	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-17	FORMER USED OIL BURNING BOILERS PLT 3	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-40	TANK REPAIR SHOP	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-39	INACTIVE WEAPONS POOL TANK	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-34	FORMER UST CONTAMINATION AREAS	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-25	FORMER DRMO BATTERY STORAGE AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-16	FORMER SEWAGE TREATMENT PLANT	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-37	FORMER VARSOL UST	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-03	CLOSED SANITARY LANDFILL 2, SWMU 3	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-21	INACTIVE RANGE 17 LANDFILL	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-23	OLD REMAGEN IMPACT RANGE	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-04	WETSITE LANDFILL	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-24	OLD ROCKET GRENADE RANGE	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-01	Active Sanitary Landfill	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-22	FORMER TASC WASTE SOLVENT CABINET	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-06	INACTIVE TANK HILL LANDFILL	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-19	FORMER TASC HW STORAGE AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-15	WESTON LAKE SEWAGE TRT PLT	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-27	FORMER BLDG F2182 WASH PAD & O/W SEP	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-33	FORMER BLDG 1611 WASH PAD& O/W SEPARATOR	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-32	INACTIVE ACID PIT, BLDG 6586	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-26	ENERGY PLANT #3 DRAINAGE AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-29	FORMER TANK 5453	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-11	INACTIVE 48TH EOD OB/OD GROUND	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-30	FORMER ROADS & GROUNDS STORAGE AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-20	Frmr PCB Sto.Area,Bldg 2569-SWMU 20	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-31	FORMER SHED 1617 AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-10	INACTIVE WONSON OB/OD	FTJA-10 Inactive wonson ob/od ground	20250930

## IRP Schedule

	GROUND		
FTJA-14	VETERINARY INCINERATOR	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-18	Inactive INCHON OB/OD Ground-SWMU17	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-13	FORMER WEAPONS CLEANING AREA	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-09	FORMER WASTE OIL TANKS	FTJA-10 Inactive wonson ob/od ground	20250930
FTJA-23	OLD REMAGEN IMPACT RANGE	FTJA-23 Old remagen impact range	20130930
FTJA-37	FORMER VARSOL UST	FTJA-37, FORMER VARSOL UST	20130930
FTJA-39	INACTIVE WEAPONS POOL TANK	FTJA-39 - Removal	20130930
FTJA-18	Inactive INCHON OB/OD Ground-SWMU17	FTJA-18 - Inchon OB/OD Ground	20251230
FTJA-20	Fmr PCB Sto.Area,Bldg 2569-SWMU 20	FTJA-20 FORMER PCB STO AREA BLDG 2569	20130930

**Final RA(C) Completion Date:** 201109

**Schedule for Next Five-Year Review:** N/A

**Estimated Completion Date of IRP at Installation (including LTM phase):** 204309



## FORT JACKSON IRP Schedule

  = phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-01	Active Sanitary Landfill	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-02	CLOSED SANITARY LANDFILL 1	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-03	CLOSED SANITARY LANDFILL 2, SWMU 3	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-05	Inactive WETSITE Landfill (SWMU 5)	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-06	INACTIVE TANK HILL LANDFILL	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-13	FORMER WEAPONS CLEANING AREA	CMI(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-21	INACTIVE RANGE 17 LANDFILL	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-23	OLD REMAGEN IMPACT RANGE	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-32	INACTIVE ACID PIT, BLDG 6586	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-34	FORMER UST CONTAMINATION AREAS	LTM						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-39	INACTIVE WEAPONS POOL TANK	CMI(O)						
		LTM						

**FORT JACKSON**  
**Army Defense Environmental Restoration Program**  
**Military Munitions Response Program**

## MMRP Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 12/5

### Installation Site Types with Future and/or Underway Phases

- 2 Small Arms Range  
(FTJA-005-R-01, FTJA-007-R-01)
- 5 Unexploded Munitions/Ordnance  
(FTJA-003-R-01, FTJA-004-R-01, FTJA-006-R-01, FTJA-011-R-01, PBA@MR Jackson)

### Most Widespread Contaminants of Concern

Munitions and explosives of concern (MEC), Munitions constituents (MC)

### Media of Concern

Groundwater, Soil

### Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTJA-001-R-01	Camp Jackson Ranges (AOC D)	FRA	INSTITUTIONAL CONTROLS	2012
FTJA-002-R-01	Small Arms Ranges East of Chestnut	FRA	INSTITUTIONAL CONTROLS	2012
PBA@MR Jackson	PHASE II PBA for MR @ FORT IRA JACKSON		INSTITUTIONAL CONTROLS	2012

### Duration of MMRP

**Date of MMRP Inception** 199909

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201612/201612

**Date of MMRP completion including Long Term Management (LTM):** 201612

# MMRP Contamination Assessment

## Contamination Assessment Overview

The DoD has established the MMRP under the DERP to address DoD sites with MEC including unexploded ordnance (UXO), discarded military munitions (DMM), and MC.

The US Army's inventory of closed, transferring, and transferred (CTT) military ranges and sites has identified sites eligible for action under the MMRP.

The MMRP-eligible sites include nonoperational ranges where UXO, DMM, and MC are known or suspected and the release occurred prior to Sept. 30, 2002. Properties classified as operational ranges are not eligible and, therefore, are excluded from the MMRP program.

The MMRP began in the late-1990s as a result of key drivers such as processes outlined in the National Contingency Plan (40 CFR 300) as authorized by CERCLA, 42 US Code (USC) 9605, as amended by the SARA, Pub. L. 99-499.

While it is DoD's goal to address MMRP sites under CERCLA, the Army recognizes that some installations, including FTJA, will need to address these sites under the RCRA CA program.

The process began with three phases of range inventories. Phase I consisted of installations (FTJA) filling out an initial data call issued by the Training and Doctrine Command, where they sought information about ranges on their installations. USAEC managed the implementation of Phases II and III of the MMRP inventory.

The Phase II inventory dealt with active and inactive range considerations. Phase III involved the CTT range inventory conducted in 2002. Included were extensive mapping, data collection for upload to the Army range inventory database, assessment of explosives safety risk using the risk assessment code methodology for CTT ranges or sites with UXO or DMM identified in the inventory, and the determination of which sites on the inventory potentially qualify for the MMRP.

The Phase III final CTT range inventory report for FTJA is dated June 2003. The CTT marked the completion of the PA phase of work under CERCLA and the RFA phase of work under RCRA CA. In September 2004, the historical records review (HRR) was conducted by Malcolm Pirnie for USAEC/FTJA. The HRR included a limited scope records search to document historical and other known information, and to facilitate decisions on what information is needed to determine the next steps in the CERCLA/RCRA process. Upon completion of the HRR report, the SI was initiated in FY05.

The CS (SI) phase was completed in 2006. Responses to residual SCDHEC comments were incorporated into the finalized CS (SI) report. Ten sites that form seven AOCs were investigated. The seven sites were added to the FTJA RCRA permit in early 2006 as: AOC D, AOC E, AOC F, AOC G, AOC H, AOC I and AOC J. Site AOC D consists of the Camp Jackson ranges. Site AOC E comprises the small arms ranges east of Chestnut Road. Site AOC F is the live hand grenade court 2. Site AOC G consists of the FTJA Flight Club (FJFC) Salerno ranges. Site AOC H is the FJFC Saint Lo range. Site AOC I comprises the safety fans for mortar ranges 5A, 7 and 8. AOC J is the dismounted and moving vehicle submachine gun area.

Results of the CS (SI) indicate that five of these seven sites will move forward into the RFI/RI phase, and that NFA is required at the other two (AOCs D and E). RFI activities at the five MR sites began in FY09. The huge (~960pp) RFI WP was drafted, reviewed and approved twice internally (FJ, HNC and SCDHEC) and then by SCDHEC, after several iterations. The RFIs were performed and reports written in 2011-12 and approved in 2012-13. CMS phase to follow under a new PBA(III).

## Cleanup Exit Strategy

The FTJA completed the SI in FY07. Results of the CS (SI) indicate that five MMRP sites will move forward into the RFI/RI phase, and that NFA is required at AOC D or AOC E. The RFI activities at these five sites began in FY09 and are included in the individual site descriptions.

## MMRP Previous Studies

	Title	Author	Date
2003	Phase 3 CTT Range Inventory Report	Malcolm Pirnie	SEP-2003
2004	HRR	Malcolm Pirnie	SEP-2004
2005	Draft SI WP	Malcolm Pirnie	MAR-2005
2006	Draft EA for New National VA Cemetery	URS	MAR-2006
	MMRP Final SI Report	Malcolm Pirnie	JUL-2006
	EBS VA Cemetery Parcel	URS	DEC-2006
2007	Final EA for VA Cemetery	URS	FEB-2007
	Final EA for VA Cemetery	URS	FEB-2007
	Final SI Report for Ft. Jackson, Columbia, SC	Malcolm Pirnie Inc.	DEC-2007
2008	Final SI Report for Ft. Jackson, Columbia, SC, Revision 1	Malcolm Pirnie, Inc.	JAN-2008
2009	Reporting Plan Change Related to AOC D and AOC E - Child Development Center (CDC) Construction Notification	EMB,Env.Div.,Ft. Jackson, SC	FEB-2009
	Final SI Report for Ft. Jackson, Columbia, SC, Revision 2	Malcolm Pirnie, Inc.	APR-2009
	Reporting Plan Change for AOC J	Ft. Jackson, EMB, Env. Div	MAY-2009
	AOC E Reporting Plan Change Letter	EMB, Env.Div., Fort. Jackson	OCT-2009
2010	Draft RFI Work Plan	CH2M Hill	APR-2010
	Revised Draft MMRP RI Work Plan	CH2MHILL	JUN-2010
	VA CEM AOC S-VA Cemetery Letter of Transfer-LOT	VA-DA HQ	JUL-2010
	VA CEM AOC S - VA Cemetery Letter of Transfer - LOT	HQ DOD/VA	JUL-2010
	MMRP RI Work Plan RTCs unofficial highlighted copy	CH2MHill	OCT-2010
2011	MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUN-2011
	MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUN-2011
	MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUL-2011
	MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUL-2011
	MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUL-2011

## MMRP Previous Studies

2011

Title	Author	Date
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	JUL-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	AUG-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	AUG-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	AUG-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	AUG-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	SEP-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	SEP-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	SEP-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	SEP-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	OCT-2011
MMRP PBA Fort Jackson (AOC F, G, H, I, J) RFI Weekly Status Report	CH2MHill	OCT-2011

2012

Final CMI WP MMRP Sites AOC D & E	CH2MHill	JAN-2012
Draft RFI Report:MMRP Site FTJA-005-R-01	CH2MHill	APR-2012
Final: Reporting Plan Changes:FTJA-007-R-01	FTJA	APR-2012
Draft RFI Report, MMRP Sites FTJA-06-R-01 &FTJA-007-R-01	CH2MHill	APR-2012
Draft Final Engineering Evaluation/Cost Analysis(EF/CA) for LUCs at FTJA under MMRP	CH2MHill	MAY-2012
Draft-Final RFI Report, MMRP Sites:FTJA-003-R-01 and FTJA-004-R-01	CH2MHill	MAY-2012
FTJA-007-R-01 Draft RFI, Replacement Pages and RTCs	CH2MHill	JUN-2012
FTJA-007-R-01 Draft RFI Replacement Pages and RTCs	CH2MHill	JUL-2012
Reporting Planned Changes:Build Sidewalks at AOC J	FTJA	JUL-2012
RFI Report Replacement Pages and RTCs, FTAJA-003-R-01, FTJA-005-R-01, FTJA-006-R-01	CH2MHill	JUL-2012
Draft Statement of Basis, FTJA-007-R-01	CH2MHill	JUL-2012
Reporting Planned Changes:Build Sidewalks at AOC J	FTJA	JUL-2012
Final RFI Report Replacement Pages and RTCs, FTJA-005-R-01	CH2MHill	AUG-2012
Final RFI Report Replacement Pages and RTCs, FTJA-005-R-01	CH2MHill	AUG-2012
Draft-Final CMS, FTJA-007-R-01	CH2MHill	AUG-2012
Final Statement of Basis, FTJA-007-R-01	CH2MHill	NOV-2012
Final CMS Report, FTJA-007-R-01	CH2MHill	NOV-2012

**FORT JACKSON**  
**Military Munitions Response Program**  
**Site Descriptions**

**Site ID: FTJA-003-R-01**  
**Site Name: Live Hand Grenade Court 2 (AOC F)**  
**Alias: AOC F**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** 03

Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	200208.....	200306
CS.....	200404.....	200606
RFI/CMS.....	200906.....	201512

**RIP Date:** N/A

**RC Date:** 201512

## SITE DESCRIPTION

Live Hand Grenade Court 2 (AOC F) was located east of Chestnut Road in the area overlapped by the Camp Jackson ranges (specifically, the 300 yard range) and the small arms ranges east of Chestnut Road. The site encompasses approximately 33 acres. The hand grenade court was used during the 1940s and 1950s. The period of use and types of grenades (live and practice) were approximated based on the reviewed mapping information. This area was also used for field fortification training in the 1970s and 1980s indicating it has been extensively disturbed since its use as a hand grenade court.

Minor revisions to the final SI report were approved in FY09. The RI began in September 2009 and the draft WP was submitted in June 2010.

A PBA was awarded in FY09 to cover all MR sites. An RFI/CMS began in FY09. Costs are covered under PBA@MR Jackson. Final RFI Report approved in 2012. PBA obligations for this site are fulfilled. Next contract to pick up the following phase, CMS, and through RIP/RC.

## CLEANUP/EXIT STRATEGY

Excavation is anticipated for MEC removal, off-site waste transportation and disposal. Institutional controls and MEC monitoring are also included as part of the final remedy.



**Site ID: FTJA-004-R-01**  
**Site Name: FJFC Salerno Ranges (AOC G)**  
**Alias: AOC G**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** 03

Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	200208.....	200306
CS.....	200404.....	200606
RFI/CMS.....	200906.....	201506

**RIP Date:** N/A

**RC Date:** 201509

## SITE DESCRIPTION

The FJFC Salerno range (AOC G) includes a 22-acre area located east of Wildcat Road and north of Shenandoah Road in the northern portion of the FJFC area. The Salerno ranges were used primarily for rocket, rifle grenade, and small arms training. Most range features are no longer discernible at the site, but historical information provided general locations for the firing lines and target areas.

Minor revisions to the final SI report were approved in FY09. The RI began in September 2009 and the draft WP was submitted in June 2010.

A PBA was awarded in late FY09 to cover all MR sites. Costs are covered under "PBA@MR Jackson."

Final RFI Report approved in 2012. PBA II obligations are fulfilled for this site. Next PBA to pick up the next/final phases (CMS, etc.) and go to RIP/RC.

## CLEANUP/EXIT STRATEGY

An RFI/CMS began in FY09. After completion, a MEC RA will be conducted, followed by a MEC institutional controls and MEC monitoring as needed.

**Site ID: FTJA-005-R-01**  
**Site Name: FJFC Saint Lo Range (AOC H)**  
**Alias: AOC H**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** 05

Contaminants of Concern: Munitions constituents (MC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	200208.....	200306
CS.....	200404.....	200606
RFI/CMS.....	200906.....	201506

**RIP Date:** N/A

**RC Date:** 201506

## SITE DESCRIPTION

The FJFC Saint Lo range (AOC H) includes a 19-acre area located east of Wildcat Road and north of Shenandoah Road in the southern and western portion of the FJFC area. The Saint Lo range was used as a machine gun range in the 1950s, 1960s, and 1970s. This site also includes the overlapping range fans for other small arms training ranges that were located at the FJFC. Historical information provided general locations for the firing lines and target areas, some of which are still discernible at the site. The site includes a cleared, level area that is surrounded by pine trees and grass. The flat, cleared portion of the site has been used as an airstrip for remote controlled model airplanes since the late-1980s.

Minor revisions to the final SI report were approved in FY09. The RI began in September 2009 and the draft WP was submitted in June 2010.

A PBA was awarded in late FY09 to cover all MR sites. Costs are covered under PBA@MR Jackson.

The Final RFI Report was approved in 2012. PBA II obligations are fulfilled for this site. The next PBA will pick up the next/final phases (CMS, etc.) and go to RIP/RC.

## CLEANUP/EXIT STRATEGY

An RFI/CMS began in FY09. This is expected to be followed by excavation and off-site waste transportation and disposal. LUCs and five-year reviews are anticipated.

**Site ID: FTJA-006-R-01**  
**Site Name: Mortar Range 5A, 7, and 8 SF (AOC I)**  
**Alias: AOC I**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** 05

Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Groundwater, Soil

Phases	Start	End
RFA.....	200208.....	200306
CS.....	200404.....	200606
RFI/CMS.....	200906.....	201506

**RIP Date:** N/A

**RC Date:** 201506

## SITE DESCRIPTION

Mortar Range 5a, 7, and 8 Safety Fans (AOC I) were located in the northern section of the Weston Lake area (WLA). The area was once part of the safety fans associated with three mortar ranges used in the 1940s. The total acreage for the WLA mortar range 5a, 7, and 8 safety fans is 305 acres and excludes areas designated as operational range (i.e., the dirt access road in the northeastern portion of the site). This site includes the portions of these mortar ranges that were designated as the safety fans (not the firing lines or impact areas) so mortars are not expected. The dismantled submachine gun No. 1 range, the moving vehicle submachine gun range, and the dismantled submachine gun No. 2 range overlap the mortar range area. The mortar range 5a, 7, and 8 safety fans are now part of the Weston Lake recreation area; however, the mortar range safety fan area has not been improved and is not accessible from the main Weston Lake recreation area facilities.

The SI indicates the presence of MEC is unlikely. A MEC Signal Corps (SC) and RA will be conducted to confirm this.

Minor revisions to the final SI report were approved in FY09. The RI began in September 2009 and the draft WP was submitted in June 2010.

A PBA was awarded in FY09 to cover all MR sites. Costs are covered under PBA@MR Jackson.

The Final RFI Report was approved in 2012. PBA II obligations are fulfilled for this site (RFI). Next PBA will pick up the final phases (CMS, etc.) and go to RIP/RC.

## CLEANUP/EXIT STRATEGY

An excavation is pending, including off-site waste transportation and disposal. Institutional land use controls are also underway and required to continue until SCDHEC is satisfied with this recreational area site.

**Site ID: FTJA-007-R-01**  
**Site Name: D and MV Submachine Gun Area**  
**Alias: AOC J**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** 05

**Contaminants of Concern:** Munitions constituents (MC)

**Media of Concern:** Groundwater, Soil

Phases	Start	End
RFA.....	200208.....	200306
CS.....	200404.....	200606
RFI/CMS.....	200906.....	201306
CMI(C).....	200912.....	201409

**RIP Date:** N/A

**RC Date:** 201409

## SITE DESCRIPTION

The dismantled and moving vehicle submachine gun area (AOC J) was located in the northern part of the Weston Lake recreation area. The site consists of the 13 acres associated with the dismantled submachine gun No. 1 range, the moving vehicle submachine gun range, and the dismantled submachine gun No. 2 range that are not overlapped by the mortar range 5a, 7, and 8 safety fans. The site was used for small arms training prior to construction of Weston Lake. Range features are no longer discernible at the site, but historical information provides general locations for the firing lines and target areas. A portion of the submachine gun area, which is located within the main Weston Lake recreation area, has been improved with a boat ramp, boat docks, picnic areas, and rental cabins.

Minor revisions to the final SI report were approved in FY09. The RI began in September 2009 and the draft WP was submitted in June 2010.

A PBA was awarded in FY09 to cover all MR sites. All costs for this site are covered under PBA@MR Jackson.

The Final RFI Report was approved in 2012. The PBA II contract work is on, or ahead of schedule. The removal action is next in 2013. CH2MHill is tasked to bring this site to RIP/RC under the current PBA II. It is anticipated that CH2MHill will achieve RIP/RC on schedule.

## CLEANUP/EXIT STRATEGY

An RFI/CMS, including the installation of groundwater monitoring wells began in FY09. This is expected to be followed by excavation and off-site waste transportation and disposal. Institutional controls are anticipated.

**Site ID: FTJA-011-R-01**  
**Site Name: VA Cemetery**  
**Alias: AOC S**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** Evaluation pending

Contaminants of Concern: Munitions and explosives of concern (MEC)

Media of Concern: Soil

Phases	Start	End
RFA.....	201104.....	201203
CS.....	201204.....	201412
RFI/CMS.....	201412.....	201612

**RIP Date:** N/A

**RC Date:** 201612

## SITE DESCRIPTION

This area is a 115.08-acre tract recently transferred to VA as part of 583.77-acre parcel now a National Cemetery. The southwest 115 acres denoted by Range Control as a duded area previously used for military munitions training. This area was overlapped by one former 1950s era mortar range safety fan, which is noted as both Mortar Range NR3 and NR4 on historical installation maps dated from 1949 to 1957. The area was also overlapped by other small arms range fans, including Squad in Defense Ranges NR 1 and NR 2, Close Combat Range NR 2, and Machine Gun Field Firing Range NR 1. The area also was within the northernmost portion of the North Impact Area shown on 1952 and 1957 historical installation maps. The potential presence of MEC and MC associated with the former military munitions use needs to be investigated. Site also coincides with the area chosen for Davy Crockett demonstrations/training in the 1960s. Additional attention has been given to this site by the Nuclear Regulatory Commission (NRC) and the Department of the Army (DA). Fort Jackson and SCDHEC want the folks that did the SI at the other MMRP sites to conduct the SI for this triple-program site (i.e., MMRP, NRC-DA, VA National Cemetery). A contract mechanism is being explored.

## CLEANUP/EXIT STRATEGY

An SI needs to be completed first. It will be completed under the next PBA, along with any requisite follow-on work to reach RIP/RC.

**Site ID: PBA@MR Jackson**  
**Site Name: PHASE II PBA for MR @ FORT JACKSON**  
**Alias: FTJAPBA@MR**

## STATUS

**Regulatory Driver:** RCRA

**MRSP Score:** Evaluation pending

Phases	Start	End
RFA.....	199909.....	200109
CS.....	200409.....	200803
RFI/CMS.....	200910.....	201209
IRA.....	201006.....	201202
CMI(C).....	201209.....	201312

**RIP Date:** N/A

**RC Date:** 201312

## SITE DESCRIPTION

This site exists only to track funding for the Phase II (2nd) PBA at FTJA (unexercised contract costs).

Funds for this PBA were allocated to investigate (RFI) these Fort Jackson sites FTJA-003-R-01, FTJA-004-R-01, FTJA-005-R-01, FTJA-006-R-01 and CC UST 1699 (INV). In addition, RIP/RC is tasked for FTJA-001-R-01, FTJA-002-R-01, FTJA-007-R-01 and CC UST 1699.

There is no investigation, remediation technology or action item associated directly with "PBA@MR Jackson". The PBA II at Fort Jackson is fully obligated as of FY13. After \$10K of S&A are issued for FY14, this should then become a Zero Cost Site (in FY14).

This is a "Zero Cost" site.

## CLEANUP/EXIT STRATEGY

The intent is to close this site during the spring FY14 datacall.

## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTJA-001-R-01	Camp Jackson Ranges (AOC D)	201203	After the SI Report by Malcolm Pirnie was approved in 2006, CH2MHill picked up the site in late 2009. They prepared DDs and closing documents.
FTJA-002-R-01	Small Arms Ranges East of Chestnut	201203	After the SI Report by Malcolm Pirnie was approved in 2006, CH2MHill picked up this site in late 2009. They prepared DDs and closing documents.
FTJA-008-R-01	MORTAR RANGE	200607	In the subsequent SI it was made part of FTJA-006-R-01 and therefore this range has been made RC
FTJA-009-R-01	RIFLE GRENADE RANGE NR2	200607	As part of the SI it was determined that this range was located on an operational range area and therefore ineligible for ER,A MMRP funds and has therefore been made RC.
FTJA-010-R-01	SUBMACHINE GUN AREA	200607	As part of the HRR/SI the area of this range was split into FTJA-007-R-01 and FTJA-006-R-01. This range has therefore been made RC.

## MMRP Schedule

**Date of MMRP Inception** 199909

### Past Phase Completion Milestones

**2001**

RFA (PBA@MR Jackson - PHASE II PBA for MR @ FORT JACKSON)

**2003**

RFA (FTJA-001-R-01 - Camp Jackson Ranges (AOC D), FTJA-002-R-01 - Small Arms Ranges East of Chestnut , FTJA-003-R-01 - Live Hand Grenade Court 2 (AOC F), FTJA-004-R-01 - FJFC Salerno Ranges (AOC G), FTJA-005-R-01 - FJFC Saint Lo Range (AOC H), FTJA-006-R-01 - Mortar Range 5A, 7, and 8 SF (AOC I, FTJA-007-R-01 - D and MV Submachine Gun Area , FTJA-008-R-01 - MORTAR RANGE, FTJA-009-R-01 - RIFLE GRENADE RANGE NR2, FTJA-010-R-01 - SUBMACHINE GUN AREA)

**2006**

CS (FTJA-001-R-01 - Camp Jackson Ranges (AOC D), FTJA-002-R-01 - Small Arms Ranges East of Chestnut , FTJA-003-R-01 - Live Hand Grenade Court 2 (AOC F), FTJA-004-R-01 - FJFC Salerno Ranges (AOC G), FTJA-005-R-01 - FJFC Saint Lo Range (AOC H), FTJA-006-R-01 - Mortar Range 5A, 7, and 8 SF (AOC I, FTJA-007-R-01 - D and MV Submachine Gun Area , FTJA-008-R-01 - MORTAR RANGE, FTJA-009-R-01 - RIFLE GRENADE RANGE NR2, FTJA-010-R-01 - SUBMACHINE GUN AREA)

**2008**

CS (PBA@MR Jackson - PHASE II PBA for MR @ FORT JACKSON)

**2010**

DES (FTJA-001-R-01 - Camp Jackson Ranges (AOC D), FTJA-002-R-01 - Small Arms Ranges East of Chestnut )

**2012**

IRA (PBA@MR Jackson - PHASE II PBA for MR @ FORT JACKSON)

CMI(C) (FTJA-001-R-01 - Camp Jackson Ranges (AOC D), FTJA-002-R-01 - Small Arms Ranges East of Chestnut )

RFA (FTJA-011-R-01 - VA Cemetery)

RFI/CMS (PBA@MR Jackson - PHASE II PBA for MR @ FORT JACKSON)

### Projected Phase Completion Milestones

See attached schedule

### Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined


**Final RA(C) Completion Date:** 201409

**Schedule for Next Five-Year Review:** N/A

**Estimated Completion Date of MMRP at Installation (including LTM phase):** 201612



## FORT JACKSON MMRP Schedule

 = phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-003-R-01	Live Hand Grenade Court 2 (AOC F)	RFI/CMS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-004-R-01	FJFC Salerno Ranges (AOC G)	RFI/CMS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-005-R-01	FJFC Saint Lo Range (AOC H)	RFI/CMS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-006-R-01	Mortar Range 5A, 7, and 8 SF (AOC I)	RFI/CMS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-007-R-01	D and MV Submachine Gun Area	CMI(C)						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
FTJA-011-R-01	VA Cemetery	CS						
		RFI/CMS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
PBA@MR Jackson	PHASE II PBA for MR @ FORT JACKSON	CMI(C)						

**FORT JACKSON**  
**Army Defense Environmental Restoration Program**  
**Compliance Restoration**

## CR Summary

**Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count:** 11/2

### Installation Site Types with Future and/or Underway Phases

- 1 Contaminated Ground Water  
(CCAOC Q)
- 1 Oil Water Separator  
(CCSWMU 53)
- 7 Underground Storage Tank  
(CCUST 11-559, CCUST 1699, CCUST 2089, CCUST 3499, CCUST 4120, CCUST AOC T, CCUST4522)

### Most Widespread Contaminants of Concern

Other (Chloroform, Dieldrin), Other (Free-product), Other (Napthalene), Petroleum, Oil and Lubricants (POL), Volatiles (VOC)

### Media of Concern

Groundwater, Soil

### Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CCUST4522	UST SITE REMEDIATION	FRA	BIOREMEDIATION - IN SITU GROUNDWATER	2010
CCUST4522	UST SITE REMEDIATION	FRA	CHEMICAL REDUCTION/OXIDATION	2010
CCUST 1	Former 1980s Fuel Depot	IRA	REMOVAL	2013
CCUST 4120	UST Site Remediation	IRA	FREE PRODUCT RECOVERY	2013
CCUST4522	UST SITE REMEDIATION	FRA	NATURAL ATTENUATION	2013

### Duration of CR

**Date of CR Inception:** 199706

**Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC):** 201809/201809

**Date of CR completion including Long Term Management (LTM):** 201812

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## CR Contamination Assessment

### Contamination Assessment Overview

Environmental restoration activities include the IRP and the MMRP. On Dec. 29, 2008, the Office of the Deputy Under Secretary of Defense for Installations and Environment, ODUSD(I&E), issued an interim policy for DERP eligibility that rescinded the 1986 eligibility date for the IRP and the 2002 eligibility date for the MMRP. This made many sites previously addressed in the Army's CC program eligible for the DERP. Sites that are now eligible for the Munitions Response MR program have been migrated from Army Environmental Database - Compliance-related Cleanup (AEDB-CC) and given the naming convention of other MR sites. The newly eligible non-MR type sites are considered to be Installation Restoration (IR) sites; however, the newly eligible sites are being coded as Compliance Restoration (CR) in AEDB-R to distinguish them from the original IR sites and IR metrics.

### Cleanup Exit Strategy

See individual sites for the cleanup exit strategies.

## CR Previous Studies

2012

Title	Author	Date
Final SAR for UST 1699	CH2MHill	JAN-2012
Corrective Action Monitoring Report, CCUST 4522	CESAS	JAN-2012
CCUST 1 QAPP	North Wind	MAR-2012
Revised QAPP and RTCs - CCUST 1	North Wind	MAR-2012
CCUST 1 CAP	North Wind	MAY-2012
CCUST 4522 - UIC Permit Application and QAPP RTCs	CESAS	JUN-2012
Draft-Final CAP CCUST 1699	CH2MHill	AUG-2012
UIC Permit Application, CCUST 4522	CESAS	AUG-2012
Revised Quality Assurance Project Plan, TASC QAPP - CCUST 1	North Wind	OCT-2012

**FORT JACKSON**  
**Compliance Restoration**  
**Site Descriptions**

**Site ID: CCAOC Q**  
**Site Name: MW6-10**  
**Alias: AOC Q**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Other (Chloroform, Dieldrin)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	200410.....	200510
CS.....	200809.....	201409

**RIP Date:** N/A

**RC Date:** 201409

## SITE DESCRIPTION

The forested area is a compass training course for GIs. This site is a point of interest surrounding one well in the woods, with no known history or date of operation.

Site AOC Q - MW6-10 is a background monitoring well that was placed too far outside the SWMU 6 boundary during the final RFI in 2005. It is a single monitoring well (MW6-10) approximately 1750 ft from SWMU 6 (FTJA-06), which is a C&D LF that is included in the FTJA IR PBC. The well is next to a creek and deemed too far away to connect to FTJA-06. It was, therefore, spun off as a separate site. The RCRA permit lists it as AOC Q and requires a CS investigation. The FTJA prepared a RCRA assessment report (AR) that included groundwater sampling data detections for chloroform: 0.17 ug/L J and Dieldrin: 0.0135 ug/L. Both detections are exceedances. The USEPA risk base concentration (RBC) for chloroform is 1.5E-1 and the RBC and preliminary remedial goal (PRG) for Dieldrin are 4.2E-3. Subsequent sampling efforts showed higher concentrations of Dieldrin that further exceed USEPA PRG standards (0.039 ug/L) by nearly three times, as noted by the SCDHEC. Additional CS was performed in 2009, 2010 and 2011, because the CS Report request for NFA was answered w/ requirement to re-sample well per the RCRA permit.

The most recent SCDHEC letter states that additional groundwater and surface water samples were collected, to verify the presence and extent of chloroform and Dieldrin contamination. The report indicates that both constituents were detected above USEPA screening criteria in the well and one of the two creek samples. Continued sampling is anticipated now, versus a NFA decision. Subsequent actions will hinge on the SCDHEC response to future sampling results.

## CLEANUP/EXIT STRATEGY

An NFA is still possible, but more sampling of ground and surface water is required in 2013.

**Site ID: CCSWMU 53**  
**Site Name: Overgrown Oil Water Separator site**  
**Alias: SWMU 53**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	201103.....	201104
CS.....	201104.....	201506

**RIP Date:** N/A

**RC Date:** 201509

## SITE DESCRIPTION

An oil/water separator (OWS) was unexpectedly found behind the location of a former motorpool approximately 500-feet laterally from FTJA-32. Contamination occurred at depth. The SCDHEC requires additional investigation, per the RCRA Permit.

Seeking to award a contract to address the environmental requirements.

## CLEANUP/EXIT STRATEGY

Cleanup requirements will be better defined once the CS Phase is complete.



**Site ID: CCUST 11-559**  
**Site Name: Former Chapel Used for Meetings**  
**Alias: 11-559**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
ISC.....	200905.....	201111
INV.....	201201.....	201406

**RIP Date:** N/A

**RC Date:** 201409

## SITE DESCRIPTION

Contamination was found upon removal of a UST. SCDHEC requires additional investigation.

## CLEANUP/EXIT STRATEGY

An INV is required. Additional findings will warrant further study and or cleanup. It is too early to know.

**Site ID: CCUST 1699**  
**Site Name: UST Site Remediation**  
**Alias: JACF920001**

## STATUS

**Regulatory Driver:** RCRA  
**Contaminants of Concern:** Other (Naphthalene)  
**Media of Concern:** Groundwater

Phases	Start	End
ISC.....	199706.....	199806
INV.....	200801.....	201203
IMP(C).....	200910.....	201304
IMP(O).....	201209.....	201304
<b>RIP Date:</b>	201304	
<b>RC Date:</b>	201304	

## SITE DESCRIPTION

Site CCUST 1699 is a UST site at Building 1699/Energy Plant No. 3 which was formerly used as a fuel supply for the backup generator. Now an AST is used for fuel backup supply. Site contamination was discovered in the early-1990s upon UST removal. Work was initiated in 1996.

This site is located at Building 1699 off Washington Road and is used as Energy Plant No. 3. Soil tests originally exhibited 2,560 micrograms per kilogram (kg) of naphthalene. The groundwater naphthalene concentrations of 52 ug/L exceed the USEPA Region IX PRG of 6.2 ug/L. The regulatory driver is RCRA Subtitle I under the SCDHEC's UST program. Tier I and II AR as well as quarterly and annual summary sampling reports have been submitted to the SCDHEC. There is a potential for off-site migration via the on-site utility pathways. The well that is furthest downgradient is clean. The impact appears at the upgradient part of the site. Recent findings are still above acceptable naphthalene levels and are less than 100 ft from a major creek. Funding obligated so far is reflected in the IAP CTC and the RACER sections in AEDB-R.

An upgradient well was found clogged with an off-white waxy substance that melts at room temperature. Although the substance impeded use of a sampling-bailer, sampling was possible (a sample was collected in the fall of 2007). SCDHEC required further INV of this finding. Delineation was completed under the new PBA(CH2MHill). No additional downgradient contamination has appeared.

The INV was on hold per the SCDHEC request, until two adjacent 50,000-gal No. 6 fuel oil USTs were removed in early fall 2007. Unfortunately, the UST removal shed little light on CCUST 1699's future remedial path.

The investigation resumed and more SVOCs and PAHs were discovered upgradient of the 1699 UST site. A CAP followed the conclusion of investigation, to recommend the RA. The RA consists of MNA and/or NFA. The CAP was approved and implemented in 2011-2012. It consisted of two more MNA sampling events. Both were completed and results were very favorable. There were detections, but all below SCDHEC/EPA criteria. The report is approved with a NFA proposal to SCDHEC in order to reach RIP/RC at the site. No additional outyear work is anticipated.

The NFA is anticipated after the public comment period ends for the 2013 RCRA Permit Modification.

## CLEANUP/EXIT STRATEGY

The site characterization is complete and a CAP already formulated/implemented based on those results. RIP/RC are expected under the PBA, with the completion of current RCRA Permit modification (April 2013). Outyear work is not anticipated.

Site ID: CCUST 2089

Site Name: Former Fuel Station Controls Bldg

Alias: 2089

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
ISC.....	200805.....	201111
INV.....	201201.....	201406
RIP Date:	N/A	
RC Date:	201409	

SITE DESCRIPTION

Site 2089 was used as a fueling station office. There existed three 10,000-gallon USTs. Two-thirds of the dispensing lines were for diesel fuel, the rest for MOGAS. The USTs were removed in 1991. The rest of the appurtenances were removed by Fort Jackson in 2010, leading to SCDHEC requiring further corrective action there.

CLEANUP/EXIT STRATEGY

The INV phase is required. Additional findings will warrant further study and or cleanup, it is too early to know.

**Site ID: CCUST 3499**  
**Site Name: PAIO Office Building**  
**Alias: 3499**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
ISC.....	200905.....	201111
INV.....	201201.....	201406

**RIP Date:** N/A

**RC Date:** 201409

## SITE DESCRIPTION

Petroleum contamination found upon removal of 550-gallon fuel oil tank. SCDHEC requires additional investigation/corrective action.

## CLEANUP/EXIT STRATEGY

The INV phase is required. Additional findings will warrant further study and or cleanup. It is too early to know.

**Site ID: CCUST 4120**  
**Site Name: UST Site Remediation**  
**Alias: JACF920001**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
ISC.....	200107.....	200202
INV.....	200203.....	201209
CAP.....	200912.....	201407
IRA.....	200504.....	201210
IMP(C).....	201210.....	201709

**RIP Date:** N/A

**RC Date:** 201809

## SITE DESCRIPTION

This site is currently the active Gate 2 Army, Air Force Exchange Services (AAFES)shoppette/fuel station where gasoline and diesel are dispensed. Prior to the late-1990s the site was a vacant field. Impact to soils became evident in 2001 after the original tank removals, as documented in the tank closure report. Free-product (FP) was discovered in 2004. The phase schedule is based on the possibility that enhanced monitoring will take care of the problem after FP has been removed. That is, if the station has no further releases from the newer tanks.

The Tier I and Tier II assessments document the severe groundwater contamination, making this site high priority for FTJA and the SCDHEC. This site is near the post boundary with potential for impact to the nearby creek and off-post migration. Site CC UST 4120 represents the most severe groundwater impact of any of FTJA's sites. Contaminants of concern and an example of levels observed are:

- Benzene: >123,000 ug/L,
- Toluene: >761,000 ug/L,
- Ethylbenzene: >99,000 ug/L,
- Xylenes: >687,000 ug/L,
- MTBE: >476,000 ug/L, and
- Naphthalene: >350 ug/L.

The Tier II supplemental reports show that the BTEX/MTBE groundwater plume is nearly fully delineated. Tanks passed tightness tests in 2005, 2007, and 2008. This site is under command group scrutiny due to its significant role/location near the PX and I-77.

IMs have been implemented by using an automated FJ solar FP skimmer, by bailing an absorbent FP trap, and by 15 aggressive fluid vapor recovery (AFVR) events.

FTJA performed a tracer test fall of 2008. Results indicate that the gasoline system is not leaking. CESAS awarded a contract for surfactant recovery work to recover remaining FP was implemented. FTJA has been re-evaluating the product origing/source to delineate the contamination. In the interim, additional AFVR events were performed in 2008-09 bringing the total to 17 events. Based on negative tracer test results and observation wells installed in UST basin, the option of surfactant injection/extraction was implemented in the summer of 2011. That IRA reduced the BTEX levels by 90 percent in some cases, as well as lowering FP thickness to approximately 1/10-ft. That still leaves the concentrations >10,000. That is high above MCLs. Several consultants, including CESAS, agreed that dual phase extraction was a BMP technology to address the remaining petroleum concentrations in groundwater and also to reign in the plume from reaching I-77.

An IGCE was submitted to USAEC for this application to sole source reputable experts from the oil field cleanup industry in the Gulf area(PPM+QRI). FJ was told to write a justification letter for not adding this site to the next PBA.

The site has gone on like this for eight years and SCDHEC has been very patient. We held DHEC at bay with AFVR events, used as a palliative interim remedial measure. We want to honor their kindness by awarding the RA contract immediately before the plume reaches I-77 (almost there).

**Site ID: CCUST 4120**  
**Site Name: UST Site Remediation**  
**Alias: JACF920001**

## **CLEANUP/EXIT STRATEGY**

FP removal will resume with the new contract award to assess any GW gaps and develop a CAP to install and operate clean up systems (and/or strategies). Any gaps in characterization and extent of contaminants will also be filled. CAP addendums will be under the new contract.

After implementing the pending contract [(for CAP, IMP(C) and IMP(O)], GW monitoring should be the only remaining requirement for approximately three to ten years, depending on results and SCDHEC.

**Site ID: CCUST AOC T**  
**Site Name: Former UST site**  
**Alias: AOC T**

## STATUS

**Regulatory Driver:** CWA  
**Contaminants of Concern:** Other (Free-Product)  
**Media of Concern:** Groundwater

Phases	Start	End
PA.....	201007.....	201105
SI.....	201112.....	201406

**RIP Date:** N/A

**RC Date:** 201406

## SITE DESCRIPTION

The Heating Oil UST site at Bldg 4470's received a groundwater assessment that led to a NFA letter in 2005 from SCDHEC. Well abandonment event years later, revealed approximately one-foot of FP in MW-1. The SCDHEC reopened the site under Clean Water Act/RCRA C program (called it AOC T). An FP abatement and multi-well assessment is required. Funding for GW assessment is anticipated in FY13.

## CLEANUP/EXIT STRATEGY

In situ biodegradation technology using oxygen release compound (ORC) is anticipated to be an appropriate and effective remediation approach. Injection wells may be required once the FP/contamination is delineated. Follow-on sampling will be required (minimum of three annual events, to prove the effectiveness of the cleanup). More information is needed and will be attained under the next PBA contract.

**Site ID: CCUST4522**  
**Site Name: UST SITE REMEDIATION**  
**Alias: JACF920001**

## STATUS

**Regulatory Driver:** RCRA

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
ISC.....	200204.....	200402
INV.....	200205.....	200712
CAP.....	200801.....	200902
IMP(C).....	200903.....	201212
IMP(O).....	200912.....	201409
LTM.....	201409.....	201812

**RIP Date:** 201212

**RC Date:** 201409

## SITE DESCRIPTION

This former UST Site is located off Marion Avenue at Building 4522, adjacent to Semmes Lake. In February of 2002 contamination was discovered at this former AAFES station. It was closed after tanks were pulled in FY02. A water sports rental shop (Marion Street Station) now occupies the site. It is surrounded by a paved area. There is a creek on the back side and a paved walking trail and grassy covered grounds on the lake side. Previous studies that document results include: a tank closure report, IGWA, and Tier I and Tier II supplemental reports.

Analytical evidence of groundwater contamination includes regulatory exceedances for VOCs (i.e. benzene-1480 ug/L, toluene-6510 ug/L, ethylbenzene-956 ug/L and MTBE-4319 ug/L).

Because this site has enough BTEX/MTBE in groundwater and has been found to impact the creek (low MTBE concentrations) and lake via migration, additional investigation and wells were required. Potential contaminant receptors include humans or animals with exposure to the nearby creek that feeds into the 22-acre Semmes Lake.

The Tier II supplemental report suggested the next course of action was to close data gaps across the drainage creek and toward the lake, with more test borings and subsequent wells. The Tier II supplemental WP was approved by SCDHEC for fieldwork conducted at the end of FY05. In FY06 a complete delineation was attempted by installing more borings and six wells. The Tier II supplemental report concluded that the BTEX/MTBE groundwater plume was delineated.

The SCDHEC requested a CAP. A CAP and a revised CAP was submitted after SCDHEC comments were received. DHEC approved the CAP in 2008 and issued the underground injection control (UIC) permit.

The approved CAP is for RegenOx injections at the source and ORC advanced injections at wells near drainage creek, to knock down BTEX/MTBE levels. That work was performed in FY09 during three events. The follow-on groundwater monitoring was conducted in FY09 and FY10. The sampling report followed.

Free-product was discovered when "daylighting" occurred downgradient of the RegenOx injections near the building entrance. An additional monitoring well was added and sampled in FY12. The RA report was also completed in 2012. In FY13 CESAS installed ORC socks in selected hot spot wells, to enhance natural attenuation of petroleum residue.

## CLEANUP/EXIT STRATEGY

Additional work is TBD by the SCDHEC pending the success of the ORC alleviating hydrocarbon concentrations. Monitoring will continue until remedial goals achieved.



## Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
CC AOC K	Soils Eval. Adjacent to SWMU 21	201109	SCDHEC letter dated September 15, 2011 issued the NFA.
CCUST 1	Former 1980s Fuel Depot	201212	SCDHEC stated in letter dated March 27, 2013, reiterates that "...conditional NFA remain in effect."

## CR Schedule

**Date of CR Inception:** 199706

### **Past Phase Completion Milestones**

#### **1998**

ISC (CCUST 1699 - UST Site Remediation)

#### **2002**

ISC (CCUST 4120 - UST Site Remediation)

#### **2004**

ISC (CCUST4522 - UST SITE REMEDIATION)

#### **2006**

RFA (CC AOC K - Soils Eval. Adjacent to SWMU 21, CCAOC Q - MW6-10)

#### **2008**

INV (CCUST4522 - UST SITE REMEDIATION)

#### **2009**

CAP (CCUST4522 - UST SITE REMEDIATION)

#### **2011**

PA (CCUST AOC T - Former UST site)

RFA (CCSWMU 53 - Overgrown Oil Water Separator site)

CS (CC AOC K - Soils Eval. Adjacent to SWMU 21)

#### **2012**

ISC (CCUST 1 - Former 1980s Fuel Depot, CCUST 11-559 - Former Chapel Used for Meetings , CCUST 2089 - Former Fuel Station Controls Bldg, CCUST 3499 - PAIO Office Building)

INV (CCUST 1699 - UST Site Remediation, CCUST 4120 - UST Site Remediation)

### **Projected Phase Completion Milestones**

**See attached schedule**

### **Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates**


To Be Determined

**Final RA(C) Completion Date:** 201709

**Schedule for Next Five-Year Review:** N/A

**Estimated Completion Date of CR at Installation (including LTM phase):** 201812

## FORT JACKSON CR Schedule

 = phase underway

SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCAOC Q	MW6-10	CS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCSWMU 53	Overgrown Oil Water Separator site	CS						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST 11-559	Former Chapel Used for Meetings	INV						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST 2089	Former Fuel Station Controls Bldg	INV						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST 3499	PAIO Office Building	INV						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST 4120	UST Site Remediation	CAP						
		IMP(C)						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST AOC T	Former UST site	SI						
SITE ID	SITE NAME	PHASE	FY14	FY15	FY16	FY17	FY18	FY19+
CCUST4522	UST SITE REMEDIATION	IMP(O)						
		LTM						

## Community Involvement

**Technical Review Committee (TRC):** None

**Community Involvement Plan (Date Published):** 200506

**Restoration Advisory Board (RAB):** No

**Reason Not Established:** The community has expressed no sufficient, sustained interest in a RAB.

**Community Interest Solicited on:** 201102

### **Efforts Taken to Determine Interest**

In the past, FTJA has published public notices in a local newspaper, soliciting interest in establishing a RAB. Based on the response to the public notices, it was determined that there was not sufficient community interest to sustain a RAB for FTJA.

In fall 2004, FTJA published public notices in The State newspaper on three separate occasions. The notices encouraged the public to call the IRP manager if interested in participating in a RAB at FTJA.

In 2006, during the RCRA permit modification process, public comment and participation were solicited. There was no interest expressed.

In 2009, during the RCRA permit renewal process, public comment and participation were solicited. This was followed by solicitation for a RAB in the local newspaper.

In March 2010, a public comment period and participation was solicited again during a RCRA permit modification process.

### **Results**

People have turned out to the public meetings, but no written community responses have been received to date.

### **Follow-up Procedures**

No RAB has been established to date. Solicitation efforts for the formation of a RAB will reoccur in May 2013.

### **Additional Community Involvement Information**

The Community Relations Plan was updated in FY05 (2005).

The CRP [now called Community Involvement Plan (CIP)] is being updated in 2013.

### **Administrative Record is located at**

2563 Essayons Way, (Bldg. 2563)  
Fort Jackson, SC 29207-5670  
Contact: 803-751-7332

### **Information Repository is located at**

2563 Essayons Way (Bldg. 2563)  
Fort Jackson, SC 29207-5670  
Contact: 803-751-7332

**Current Technical Assistance for Public Participation (TAPP):**N/A

**TAPP Title:** N/A

**Potential TAPP:** N/A

